



Scanned from the collection of  
Dino Everett

Coordinated by the  
Media History Digital Library  
[www.mediahistoryproject.org](http://www.mediahistoryproject.org)

Funded by a donation from  
David Pierce



AFT DEEVE  
MOTION PICTURE EQUIPMENT  
7512 SANTA MONICA BLVD.  
HOLLYWOOD, CALIF. U.S.A.



Digitized by the Internet Archive  
in 2012 with funding from  
Media History Digital Library

<http://archive.org/details/internationalpho07holl>

ART DEEVE  
MOTION PICTURE EQUIPMENT  
7513 SANTA MONICA BLVD.  
HOLLYWOOD, CALIF. U.S.A.



# INTERNATIONAL PHOTOGRAPHER

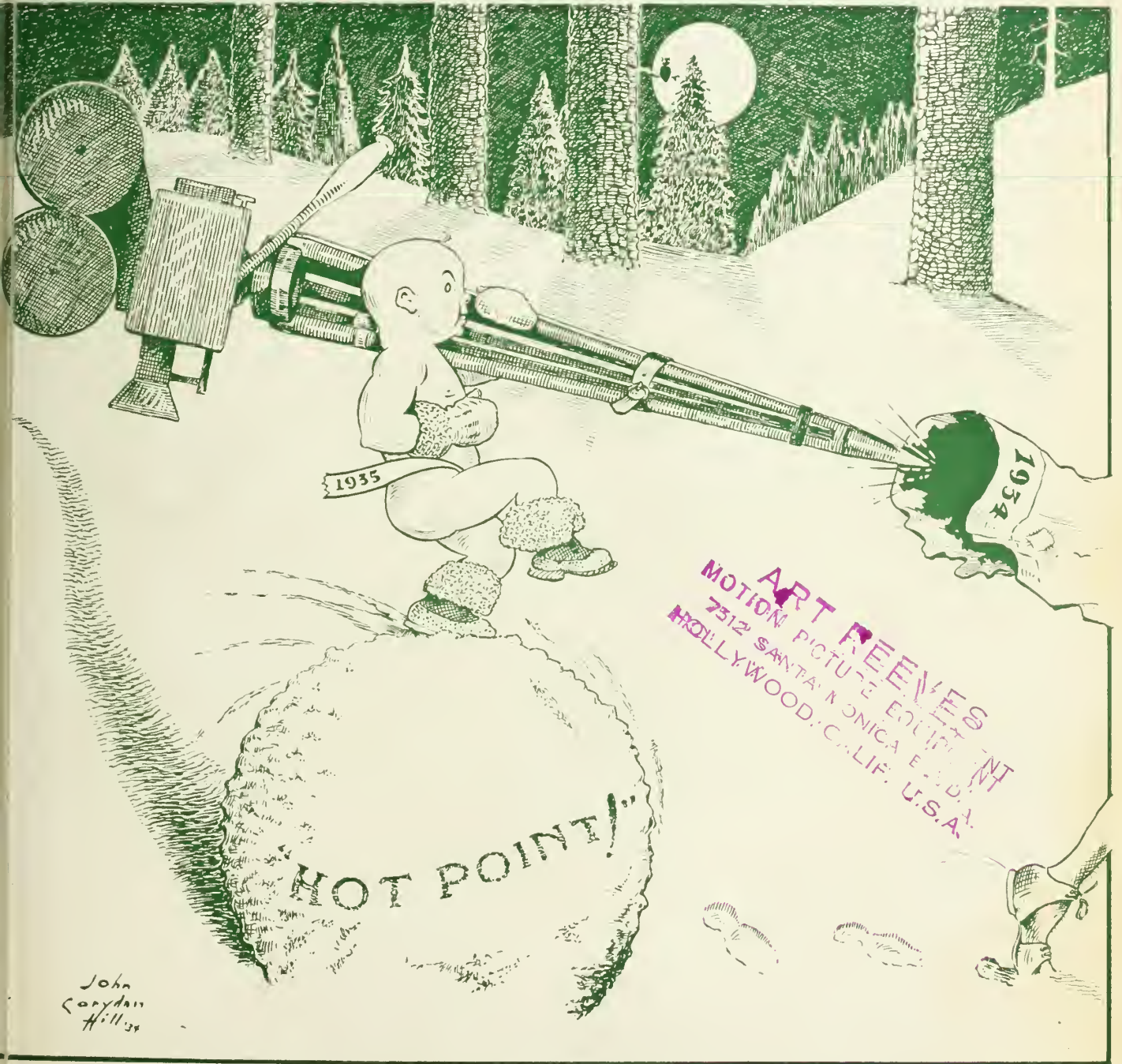
HOLLYWOOD

YEAR

JANUARY, 1935

VOL. 6

No. 12



In shifting his set-up from 1934 to 1935 the Cameraman calls "Hot Points" to the Big Wide World, with every assurance that, in the building of the Bigger, Better, more Useful Motion Picture Industry, he will be in the front rank of those workers who will not fail to DO THEIR PART. And, if the dear reader is not already informed on the subject, "Hot Points," in the Cameraman's language, means "Look Out Ahead."

CENTS  
A COPY

MOTION PICTURE ARTS AND CRAFTS



# THE PICTURE TELLS THE STORY



DU PONT  
NEGATIVE



DU PONT FILM MANUFACTURING CORPORATION

35 WEST 45<sup>TH</sup> STREET  
NEW YORK CITY

PLANT . . . PARLIN, N. J.

SMITH & ALLER LTD.

6656 . . SANTA MONICA BLVD.

HOLLYWOOD, CAL.

THE  TRADE MARK HAS NEVER BEEN PLACED ON AN INFERIOR PRODUCT

# INTERNATIONAL PHOTOGRAPHER

MOTION PICTURE ARTS AND CRAFTS

Vol. 6 HOLLYWOOD, CALIFORNIA, JANUARY, 1935 No. 12

SILAS EDGAR SNYDER, *Editor-in-Chief*

EARL THEISEN and CHARLES FELSTEAD, *Associate Editors*

LEWIS W. PHYSIOC, FRED WESTERBERG, *Technical Editors*

JOHN CORYDON HILL, *Art Editor*

HELEN BOYCE, *Business Manager*

A Monthly Publication Dedicated to the Advancement of Cinematography in All Its Branches; Professional and Amateur; Photography; Laboratory and Processing, Film Editing, Sound Recording, Projection, Pictorialists.

## CONTENTS

Front Cover Drawing by John Corydon Hill

APPLICATION OF STEREOSCOPY TO MOTION PICTURES -	2
<i>By Lewis Physioc</i>	
MINIATURE CAMERA PHOTOGRAPHY - - - - -	3
<i>By Augustus Wolfman</i>	
CAMERA ANGLES - - - - -	6
<i>By Karl A. Barleben, Jr., F.R.P.S.</i>	
RECENT PHOTOGRAPHIC SOUND PATENTS - - - - -	9
<i>By Robert W. Fulwider</i>	
CINEMACARONI - - - - -	8
<i>By Bob Tobey</i>	
THE RELATIONSHIP BETWEEN CONTINUITY AND CUTTING - - - - -	10
<i>By Paul E. Bowles</i>	
THE HOLLYWOOD NOTE BOOK - - - - -	12
<i>By Earl Theisen</i>	
"THE OLD MOVIE DAYS" - - - - -	14
<i>By Paul Powell</i>	
"THE HORSE IN MOTION" - - - - -	15-16-17
<i>By G. E. Van Guysling</i>	
WHAT IS THE HUNCH? - - - - -	20
<i>By Geoffrey Hodson</i>	
THE CINEMATOGRAPHER'S BOOK OF TABLES - - - - -	21
<i>By Fred Westerberg</i>	
PANORAMA OF THE GOLDEN GATE BRIDGE - - - - -	22
OUT OF FOCUS - - - - -	32
<i>By John Leezer</i>	

Entered as second class matter Sept. 30, 1930, at the Post Office at Los Angeles, California, under the act of March 3, 1879.

Copyright 1934 by Local 659, I. A. T. S. E. and M. P. M. O. of the United States and Canada

Office of publication, 1605 North Cahuenga Avenue, Hollywood, California  
Gladstone 3235

James J. Finn, 1 West 47th St., New York, Eastern Representative  
McGill's, 179 and 218 Elizabeth St., Melbourne, Australian and New Zealand agents.  
Subscription Rates—United States and Canada, \$2 a year. Single copies, 25 cents.

This Magazine represents the entire personnel of photographers now engaged in professional production of motion pictures in the United States and Canada. Thus THE INTERNATIONAL PHOTOGRAPHER becomes the voice of the Entire Craft, covering a field that reaches from coast to coast across North America.  
Printed in the U. S. A. at Hollywood, California



## PROSPECTS FOR FEBRUARY

Technical Editor Fred Westerberg promises other Cinematographic Tables if he finds the time to complete them.

Associate Editor Charles Felstead, who has been seriously ill for several weeks will be with us again if sufficiently recovered.

Robert Tobey, he of the Cinemacaroni Page, will risk his life with another chapter of "Hollywood Honeymoon," a la nutmeg.

Charles P. Boyle (Otto Phocus) will be represented again if he returns in time from his scientific expedition to the Los Angeles River.

A new color process, billed to beat the world, will be taken apart by Technical Editor Lewis W. Physioc and re-assembled—if found not wanting.

Walter Bluemel, who has been trying out Irving Akers' new camera, will be here with some interesting yarns that should be welcomed by our amateur brothers.

Ray Fernstrom, the Terrible Swede of the Newsreels, promises a story in his own imitable style. Perhaps he'll have something more to say about the Junior Newsreel.

"Sixteen Millimeter Sound Pictures in Color," from the Journal of the S. M. P. E., by C. N. Batsel and L. T. Sachtleben, will greet the amateur with some interesting facts.

Augustus Wolfman will be present with one of his authoritative articles on Miniature Camera Photography. His work with The International Photographer has attracted international attention.

Paul R. Harmer, who already has made his mark as a technical writer on Cinematic affairs, will be back again with an amazing yarn about the use of a submersible in shooting under water movies.

Associate Editor Earl Theisen, who has been summoned to Colorado by the death of his father, will find time from his new duties to write on a subject to be chosen by himself. The heartfelt sympathy of the staff and of his host of friends is extended to this brilliant young writer.







# Applicability of Stereoscopy to Motion Pictures

*Read before the Society of Motion Picture Engineers and Reprinted by Special Permission of the Author.*

By LEWIS W. PHYSIOC, *Technical Editor*

**T**HE progress being made in some of the color processes and the revival of interest in the talking pictures, especially those devoted to sound photography, have elicited the statement from many sources that "the next step forward is stereoscopic motion pictures," which will complete the system of reproducing, artificially, all of the elements of dramatic art, i.e., speech, action, form, color and solidity.

This discussion is not intended as an exposition of the theory of stereoscopy because the subject is familiar to most of the scientific staff of the picture business. It has been suggested, however, that this society might well go on record in establishing a few facts for the benefit of those who might hold too lightly a serious problem, or who still cherish the idea of some system for producing stereoscopic motion pictures, that might be acceptable to the public. Nor is it our wish to deny the possibility of what we call a practical solution of the problem, for the mind of man has achieved such wonderful things, especially in the last fifty years, that the student hesitates to place a limit upon its accomplishments.

We observe a growing confidence in the endorsement, by this body, of any idea designed to improve our art, and it is for this reason that we call attention to various experiments that have been misunderstood or misrepresented.

The study of stereoscopy antedates, by many years, even the art of photography. Leonardo da Vinci selected from the common observation of this phenomenon two well defined elements in the art of picture making: those of stereoscopy and perspective. Theretofore, these two subjects were merely matters of curious interest to the more observant minds, but da Vinci made a deep study of them and deduced them to rules and laws sufficiently well grounded to place them among the arts and sciences. Also important was his observation of the effect of pseudo stereoscopy, i.e., in viewing a picture with one eye, placing the eye in, as nearly as possible, the actual point of sight. This discovery was so important that at the present day artists delight in viewing well rounded pictures or photographs from this "point of sight." Errors of draughtsmanship, camera set-ups and the focal length of lenses are often traceable to a lack of appreciation of this simple but important expedient.

The word Stereoscopy is derived from the Greek, Stereos, meaning solidity and relief, but the following classification of the numerous elements associated with the phenomenon suggests its inadequacy.

**FIRST.** Perspective; the apparent diminishing of the size of objects, the converging of parallel lines to the so-called "vanishing point." This branch of art has furnished such a beautiful application of mathematics that infallible calculations may be made of the distance of

objects from the point of sight, their relative distance from each other and their dimensions.

**SECOND.** Common experience: dating from the conscious period of babyhood and by which we measure distances by judging the juxtaposition of objects and the overlapping of each other in the field of vision. This is one of the earliest provisions of nature for self-preservation, by enabling us to determine the nearness or remoteness of elements of danger, and also in the performance of manual labor.

**THIRD.** The physiological construction of the eye: a complicated system of mechanics that excites a reverence for the provisions of nature.

**FOURTH:** The mental reaction to this physiological stimulus: a subject that awes the most learned.

These various elements combine to produce the phenomenon, stereoscopy, which, in turn, is divided into several degrees.

- A. Complete Stereoscopy: the full effects of binocular vision among individuals possessed of a high degree of development of the physiological requirements and a perfect mental reaction.
- B. Pseudo Stereoscopy: the limits of monocular vision, or even individual deficiency in binocular vision, and various effects produced in monolens pictures.
- C. Direct Stereoscopy: by which we measure the dimensions of a single object, its form, etc., independent of its surroundings.
- D. Indirect Stereoscopy: by which we determine the dimensions, forms and relative distances by comparison with their surroundings. This is due to the unconscious appreciation of associated object outside of the so-called "yellow spot," when focusing on a given field. Indeed, it is questionable whether there should be such a classification as direct stereoscopy, for the oscillation of the orb is such an involuntary, independent agency, and the scope of the yellow spot is so great that in viewing even a tiny spot against an absolutely neutral background it is difficult to maintain a fixed point of sight. This directness is supposed to be maintained in proportion as we limit the field of vision, but the gaze is very obstinate when an effort is made to keep it on so small a point as a pencil dot. Even when studying a sphere against a black background, the supposedly ideal example of direct vision, the gaze shifts from one area of the surface to another and keeps up a continual process of comparison by indirection.

A review of this very limited consideration of the element  
(Turn to Page 26)



# Miniature Camera Photography

By AUGUSTUS WOLFMAN

*New Agfa Films To Be Available For The Rolleiflex*



**F**LATTENING Prints: No doubt it is quite annoying, and also detracting from the appearance of the print to have its edges curl up. Many photographers seem to take it for granted that the only way to have neatly flattened prints is to mount them. Quite the reverse, prints can be had which are perfectly flat if only a little additional work is resorted to.

First of all, what causes a print to curl: It is due to the difference in the amount of contraction both the gelatin of the emulsion and the paper undergo while drying. The gelatin contracts to a greater degree, hence the fact that the print curls inwards.

One method of overcoming this detriment is to immerse the prints in a solution of glycerin, which renders them limp and smooth. After the prints have been thoroughly washed, they are taken out of the water, the excess liquid is allowed to drain off, and they are then placed in a solution consisting of about 4 ounces of glycerin in a quart of water. The prints are stirred about in this bath until they have become impregnated with

it, after which they are removed and dried, when they will remain straight and in a limp condition.

The usual method of successfully flattening prints is to moisten the back of the dried print with a piece of wet cotton, or similar material, placing it between blotters, and putting this sandwich underneath a weight of about 40 pounds for about 48 hours. Many times I have placed the prints and blotters between the pages of a magazine, and using a stack of large books to provide the weight, allowed the prints to remain under the pressure about three days. The results were always perfect. Many photographers will claim that they have tried this method and still have prints which curl at the edges. This can usually be attributed to the fact that the prints have not been allowed to remain under pressure for a sufficient time—48 hours should be the minimum.

Efficient print presses can be obtained at all dealers which will greatly simplify matters and shorten the time necessary for good results. Many of these contraptions, such as the Willo press, will be found to be ideally suited for amateur use.

Dealers will also be found to have on hand patented solutions for flattening prints. Those who do not wish to expend the additional time to press their prints, can resort to such solutions, or use the glycerin solution mentioned above. In any event there is no excuse for curled prints.

*Flattening Film:* While we are on the topic of flattening we might as well include film. After the film has been processed and dried it will curl up to some extent, especially with motion picture film in which case the roll is usually about five feet long. If the film curls up greatly it will serve as a detriment in those cases where the roll is cut up into strips. One remedy is to put a weight at the end of the roll when it is hung up to dry. A metal film clip of the type sold by Eastman is the ideal tool for this purpose, or any clip of suitable weight will do. When the film is dried it will be perfectly flat and when cut into strips they will be straight, without showing any evidence of a curl.

However, if there are curled film negative strips on hand having been cut from a roll which has not been flattened, there is a method, suggested by one amateur, to flatten them. The strips are rolled up in the opposite direction of the curl, rubber bands are carefully slipped around them, and they are then put in a warm place such as close to a radiator, for about an hour or two. When the strips are unrolled they will be found to be quite flat.

*New Agfa Color Film to Be Available for the Rolleiflex:* Burleigh Brooks informs us that Agfa in Germany will soon introduce a new ultra fast color film which will be available for the 6x6 cm. Rolleiflex. This new film is six times faster than the former Agfa color film, which was rated as requiring 30 times as great an exposure as film of 18° Scheiner. The new film



An easy subject for the miniature camera. Taken on Agfa Superpan film, developed in Paraphenylene-diamine-Glycin and printed on P. M. C. No. 11.

makes possible exposures of 1/25 to 1/1000 second. Another remarkable feature of this film is that no filter is required in ordinary daylight, quite a tribute to the progress made in the sensitizing of film. This film should not be confused with the Agfacolor lenticular base film which requires a special filter, both for taking and projecting, the color in the latter case being supplied by the filter. The lenticular base film merely carries a black and white record of the color. We may look forward to having the new film introduced into this country about the first of the year.

*The Requirements of a Fine Grain Developer:* Perhaps the new year will inspire many to experiment with new developing formulas. With this thought in mind I am listing below the requirements of a fine grain developer:

1. *Its alkaline content should be low:* The greater the alkalinity of the developer the more will the emulsion swell, allowing the developer to diffuse through it more readily, and alkalinity also affects the speed of development. If the alkaline content is high the developing action will proceed at a great rate, the grains easily rupturing the swollen and tender gelatin support, uniting to form clumps of reduced silver grains, resulting in coarse grain. High alkalinity makes the emulsion more receptive to the developer and increases the rate of action.

2. *The potential of the developing agent should be low:* The potential of the developing agent is its ability to attack the exposed silver halide grain. The slower a developer performs this action the finer is the grain it produces. Below is a list of the reduction potentials of the more common developing agents as outlined by Dr. V. B. Sease. You will notice that paraphenylenediamine heads this list:

Paraphenylenediamine	- - - - -	0.3
Hydroquinone	- - - - -	1.0
Glycin	- - - - -	1.6
Metol, Rhodol, etc.	- - - - -	20.0
Amidol	- - - - -	35.0

3. *The concentration of sodium sulphite:* Whereas this chemical formerly just played the role of a preservative, preventing the oxidation of the developer, it is now employed in high concentration in fine-grain developers because of its solvent action on the silver salt in the emulsion. While the film is being developed the sodium sulphite dissolves away a portion of the silver halide grain with the result that finer grain is produced.

These are the three main factors dictating the ability of a developing solution to produce fine-grain negatives. By the addition of a restrainer such as the boric acid in the Buffered Borax formula, the developer will produce a finer grain. Perhaps we should explain the meaning of a "buffer."

By combining a weak acid and its sodium salt a "buffer solution" is obtained, so-called because it stabilizes the alkalinity of the developer. If the ordinary well-known D-76 formula is allowed to stand for some time it increases in alkalinity, consequently in developing speed, with the result that a coarser grain is produced in the film developed in it. This is overcome by the addition of boric acid to this formula (seven times the amount of borax) producing a "buffer solution" which has the ability to resist chemical agencies that tend to increase or decrease the alkalinity of the developing solution. The Buffered Borax formula can be made up and stored, in normal dilution, for as much as two months without any perceptible change in its qualities. The addition of the boric acid prolongs the development, therefore the sulphite is given a longer time to act on the silver halide grain, producing finer grained negatives.

The facts mentioned above are rather concise but will serve as a basis for those who wish to experiment with developing formulas. In any event we would like to hear from miniature camera photographers who have pet fine-grain formulas with which they are getting good results. We would like to pass them along for the benefit of other small camera workers.

Before closing this subject it would be well to reproduce the Buffered Borax formula for the benefit of those photographers who may not be acquainted with it.

#### Buffered Borax Formula

Elon, Metol, etc.	-	1	Gm.	15	gr.
Hydroquinone	-	2.5	Gm.	38	gr.
Sodium Sulphite	-	50	Gm.	1 3/4	oz.
Borax	- - - -	1	Gm.	15	gr.
Boric Acid	- - -	7	Gm.	105	gr.
Water, to make	-	500	c.c.	16	oz.

Stir constantly when adding the sulphite and borax to prevent the chemicals from caking. The borax should be kept in well stoppered containers to prevent it from becoming dehydrated. This would result in a higher alkalinity since in the above formula the hydrated form is to be used, which contains ten molecules of water per molecule of borax. Higher alkalinity would mean that not as fine a grain would be produced.

*About Exposure Again:* It has oft been repeated but it is worth while again emphasizing the fact that *overexposure is detrimental to fine-grain results.* When an overexposed negative is developed the action proceeds at a great rate, the rapidly reduced silver grains rupturing their gelatine support and uniting to form clumps of grains. It is these clumps of grains which cause graininess. Despite this important fact you will find a great number of photographers still guessing at exposure, or referring to a table, which is too general in character to produce the best results.

Many will state that their methods are yielding pictures. True! The modern emulsion has extreme latitude. You can give seven or more exposures varying relatively greatly in time, and each negative will be capable of yielding a picture, but will naturally vary in density. Suppose we select two negatives from this group, one which has been correctly exposed, and the other having received about a three or four times overexposure. Having been developed in the same solution for the same time the overexposed negative will be comparatively denser, and it is a fact that if a print of constant density is made from negatives of increasing density, the graininess of the print increases as the density of the negative increases. You can try this yourself by taking two negatives such as described, blowing them up to a very large size in the enlarger, and making prints of equal density on a glossy paper. The results will tell the story of how graininess is augmented by overexposure.

Overexposure also affects sharpness. An emulsion consists of many layers of silver grains. Suppose that to reproduce the detail in a shadow it is necessary to give an exposure that will result in one layer of silver grains to be deposited in the subsequent development. Instead the negative is overexposed, so that about four or five layers of silver grains are deposited. The result is the same as looking through a fine mesh material. By adding successive layers of the material definition will suffer.

The answer to the entire question is to *use a reliable exposure meter*, either of the "extinction type," or the new photoelectric cell meters, as the Photoscop or the Weston Meter. The accuracy of the latter meters cannot be doubted. They work on the principle of converting light energy into electrical energy. The Photoscop meter requires no calculations, giving direct readings, and also effectively reduces the angle of the light

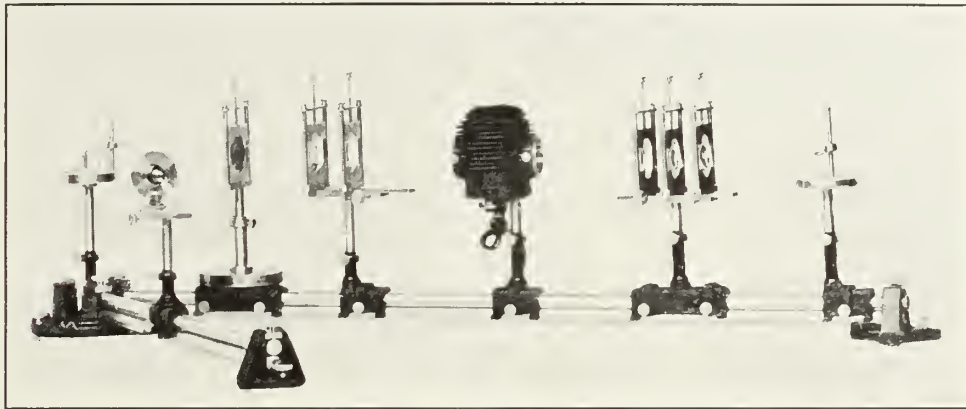


affecting it to correspond to that embraced by the usual lens used on the camera. You will find that by using a reliable meter, on development, all the negatives in the roll of film will be of practically the same density. It will also mean a decided reduction in failures.

*An Unusual Fact:* The Sease No. 3 paraphenylene-diamine formula is rated as capable of giving twenty diameter grainless enlargements when mixed freshly with pure chemicals. The Edwal Laboratories informs that if the chemicals for this formula are weighed out, mixed

together in a dry state, and allowed to stand for several months, then dissolved in hot water produce a red solution which will give a much finer grain than the freshly mixed Sease No. 3 formula. On standing the mixture acquires a pink or brown color, finally turning black. The Edwal Laboratories stress the fact that only pure chemicals should be used for this purpose, otherwise a considerable amount of tar is formed which cannot be dissolved. Here is a new angle for experimenters to work on.

### FEUSS OPTICAL BENCH



R. Feuss, Inc., announce a real universal optical bench in every sense, indispensable in colleges, high schools, industrial and research laboratories and wherever optical principles are studied or demonstrated. A new and ingenious construction enables them to furnish an extremely flexible, accurately machined, precision apparatus, at a very moderate cost.

It possesses certain salient and distinguishing features:

The overall bench length can be increased at will very inexpensively, simply by inserting the longer bar. In present type precision benches, a length of two meters, for example, is very costly.

The Variable Angle Base opens up an entirely new

field of experiments with an optical bench. It is possible to demonstrate the phenomena of spectroscopy and spectrometry, to study diffraction, refraction, Zeeman effect, Kerr effect, etc., and to perform many experiments with polarized light, not possible with a straight bench.

New and ingenious devices recently developed by R. Feuss, Inc., permit experiments or demonstrations long desired by workers and instructors in optics. Such attachments or devices, as the reader may already possess may be fitted for use with Feuss Riders and they take pleasure in offering this bench to all workers in optics and physics and recommend it as intrinsically accurate, convenient and economically priced apparatus. The equipment is manufactured in the shops of R. Feuss, Inc.

### NEW MINIATURE CAMERA CLUB

The first meeting of a new miniature camera club, to be known as the Miniature Camera Pictorialists of Los Angeles, was held Wednesday, December 5, 1934, at which time Tom J. Hopkins was elected director, and Robert E. Saltmarsh, secretary.

Meetings will be held on the first Wednesday evening of each month at 942 Westwood Boulevard, Westwood Village, Los Angeles. Membership will be limited and will be by invitation only.

The purpose of this new organization will be to advance pictorial photography with the miniature camera. There will be talks and demonstrations by prominent workers and manufacturers' representatives. Outings will be arranged.

All members will submit one print each month to be judged by a jury selected from the membership. Prints so selected will be held for a permanent traveling exhibit. There will be an international salon of miniature photography, information concerning which will be forthcoming at a later date.

The present membership consists of fifteen workers. Correspondence should be addressed to the Secretary, 1516 Westwood Boulevard, Los Angeles.

### A WORD FROM PAUL PERRY

Paul Perry writes from Manila, P. I., where he is now located, gives his friend, Charles P. Boyle, the low down about cinematography in the Orient.

Paul is now head of the color department of the Philippines Film Company and he is just completing his new laboratory. Mrs. Perry has joined him and they both like their new home.

About February, Paul will go to the Southern Islands to shoot color stuff and will then go to China to make shorts. He expects also to visit Japan, and Singapore before returning to Manila.

### Kinema Krafts Kompany

calling AMATEURS

and

PROFESSIONALS

Who want fresh 35mm. EASTMAN or DUPONT  
Gray Backed Negative.

Price—\$.02½ per foot

6510 Selma Ave. Hollywood, Calif. GLadstone 0276



# CAMERA ANGLES

By KARL A. BARLEBEN, JR., F.R.P.S.

**B**Y means of cleverly worked out angles, photographs that will stand out from the rest can be made. It seems that amateur photographers today are divided into two general groups—the first rigidly adheres to the conventional angles, and the second goes to the other extreme with exaggerated perspective in an attempt to “out-do the other fellow.” There is a happy medium, which few workers seem to go by, and yet which, if followed, will usually produce better results.

A great deal about angles can be learned from studying the motion picture screen. The principles are basically the same for still photography. It is well known that any subject can be photographed from hundreds of different angles—the main question is, however, which one of those hundred tells the story in the forceful manner? This is a question which cannot be explained, for it is purely individual. A dozen photographers, told to go out and photograph at the same time, say a statue, would return, each with a different photograph of it. In other words, each cameraman would have photographed it from the angle which he considered was best. Hence, the matter of angles cannot be described—it is just one of the vague, indefinite subjects which abound in photographic art and science.

There is such a thing, however, of studying an object to be photographed carefully in an effort to determine the best possible position for the camera. An old saying has it that the camera never lies. Photographers know better. By means of unconventional lighting and angles, a common-place object can be made to look like something entirely different. Uninitiated beginners often blunder into this truth quite by accident much to their surprise. The angle-conscious photographer will seek not only truth and beauty in the object, but also force and animation.

Unusual angles can produce a masterpiece where otherwise only a record picture would result. An entirely different interpretation of the object can often result by careful angle selection. By unusual angles is meant an angle which shows the object from a fresh viewpoint. For example, when looking at a pretty girl on the beach at the seashore, we see her at what is known as eye-level. A conventional camera angle would be one, in this case, in which the camera was used at eye-level. Should the girl be lying on the sand taking a sunbath, we standing near her, would naturally look downward to see her. If we should photograph her now from eye-level, we would get a “camera angle” as far as photography is concerned, still the viewpoint would be natural to us, from our position. In this case, a normal angle—or unusual angle—might be made by using the camera low and close to the sand, so that the lens would be more or less on a level with her face. It all depends upon the viewpoint.

When it comes to objects taller than we, we instinctively look upward at them. This would be a natural angle in photography, yet it may be made to be entirely

unnatural. Take the case of tall buildings and skyscrapers—the Empire State Building, for example. Obviously, we cannot photograph the tower of this gigantic and famous building from a normal viewpoint, yet by pointing the camera upward, we follow only our own natural instinct in looking at it—upward. So from the very start, who can say what is normal and what is unusual in angles? Many factors are involved, as will be discovered on reflection of the matter.

An unusual angle might be considered one in which a familiar object is photographed from an angle which is unusual from our ordinary conception of the object. To illustrate, in photographing a man from a low viewpoint, we picture a well-known object from an unusual angle—that is to say, when we ordinarily look at a man we see him at eye-level and not from below. The fact that the camera is situated low injects the unusual angle aspect into the case.

Motion picture cameramen know angles very well, for by means of them, they can make short stars look taller, tall stars look shorter, fat ones slim, and slim ones fat. That such knowledge is of vital value to them goes without saying. Still photographers, too, can use such knowledge to good advantage to subdue certain points, or emphasize others.

To some people, modern photography means dizzy, crazy angles. As a result, some atrocities have been created which are indeed difficult to recognize, yet by some they are called “pictorial” or “artistic.” As has been previously mentioned, there is a happy medium. In recent years, the miniature camera has been responsible for a good deal of angle work, because it permits photographs to be made under the most severe conditions. It is one thing to set up an ordinary-sized camera for an unusual angle, and quite another to do the same thing with a miniature camera. Obviously, the baby camera can “run circles” around the larger outfit. It is for this reason that unusual camera angles are so successfully accomplished with small cameras.

Angle shots, to be of any value, should attempt to portray the object being photographed as natural-like as possible. If the angle does not do this, it simply defeats the purpose. The illustration entitled: “The Modern Spirit in Photography” is purely an angle shot, and would have been of little or no value if photographed from a conventional point of view. I was lying on my back, on the floor, when making this exposure, and as a result, a pleasing pattern has resulted. The unusual has been injected into the picture, yet it is not so violent as to produce a faulty or incorrect interpretation of the object. As you look at the picture, you immediately recognize what it is. Still, a severe and unusual angle was employed in its making.

Amateur photographers should watch this matter of angles carefully. They should study the requirements of each object to be photographed, and determine just how far they dare go with extreme angles without dis-



turbing the natural aspects of it. The smaller the camera, the less the limitations imposed upon the photographer when seeking odd angles for it. There is also the mat-

ter of good taste—an injection of well-worked out angles adds tremendously to the effectiveness of a picture. Careless or indifferent angles are very apt to ruin it.



Upper Left: The Modern Spirit in Photography.—Leicaphoto by Karl A. Barleben, Jr. Lower Left: It is not unusual to see the candid cameraman down on the floor getting a "worm's eye" view of something or somebody. (Made at  $f:2$ ,  $1/20$ th second on DuPont Superior film, developed in M. P. C. developer, printed on Willobrom glossy, hard. Two Photoflood lamps, one shown in the photograph, used for illumination.—Leicaphoto by Glenn H. Pickett. Right: An angle shot designed for advertising purposes: Title: "Wait—consult the exposure meter before making that exposure"—the lady's hand gives the action.—Photograph by Kip Ross.

### SINGLE EXPOSURE REVICE

A new accessory for the Leica camera is announced by E. Leitz, Inc., 60 East 10th Street, New York City. The Single Exposure Film Holder is a thin metal device which holds a strip of standard 35 mm. film of from two to three inches long. This carrier slips into the regular Leica camera and makes possible the exposing of a single negative.

To make single exposures in this manner, the camera is of course loaded and unloaded in a darkroom, and the device is intended primarily for testing purposes, which it serves admirably well.

This single exposure apparatus is not to be confused with the "Oligo" Single Exposure Camera, which is a complete camera in itself. The device is for use in any standard model Leica camera, and sells at your local dealer for \$1.50.

Many amateurs are interested in making only one exposure and this device makes this possible with the Leica without resorting to alterations of any kind. See the new Single Exposure Film Holder at your nearest photographic dealer, or write to E. Leitz, Inc., for further details.

### NEW YORK SCHOOL CHILDREN "SHOT" IN 16 MM. MOVIES

The school children of the little community of Attica, New York, near Buffalo, were filmed en masse in 16 mm. movies recently, and the pictures, shown in the local movie theater, drew large crowds for an entire week.

So successful was the idea as a stimulator of good will and patronage for the theater that other theatermen in other cities will undoubtedly adopt it.

The whole affair was staged in a fine way. The local newspaper gave a big first-page story, with a heading clear across the page, to the advance notice of the taking of the pictures, and excitement ran high. The children formed in parade at the Attica High School and proceeded in class groups to the local theater, with banners flying. A panoramic shot was made at the schoolhouse. Later on, at the village bridge, close-ups were shot, and in front of the theater any youngsters who had special stunts to do were filmed there.

The film was well photographed by Manager William Linden of the United Projector and Film Corporation of Buffalo, using a Bell & Howell Filmo 70-DA camera.



# CINEMACARONI

By ROBERT TOBEY

(With sauce for those who like it.)



## HOLLYWOOD HONEYMOON

A novel novel of a thousand and one nights in a daze.

by  
R. THRITIS

The characters: Phooey on you. Read last issue. Or wait for next month's installment.

Synopsis of preceding chapters. All you need to know for this installment is that Perriwether Murgle, press-agent for the beautiful screen star, Lili Liverblossom, is hanging from a pipe outside Lili's apartment house. The situation isn't what you're thinking at all, as you'll find out if you read the back installments. Nevertheless, Perri is in a tough spot. A large eagle has come to inspect him, and Perri is endeavoring to cajole the eagle into carrying him to the ground. The eagle is a little dubious. But isn't that life for you?

### CHAPTER III.—Wings of Vengeance, or Something.

"I don't know that I should help you down," said the Eagle. "You look like a pretty heavy dish. Besides, I might get in trouble with the Carrier Pigeons' Union—Local No. 37, if I remember correctly," he murmured. He looked at Perri's cocked hat and that gave him an idea; he cocked his eye speculatively toward Perri. "What is there in it for me?" he said slyly.

"Just a minute," said Perri. "I'll look." With some difficulty he took off his hat. After a moment of pondering, he said, dubiously, "About all I see is a couple of telephone numbers and a sign reading 'THIS HAT STOLEN FROM ME.' I think it says 'Artificially Colored and Flavored,' too," he added brightly. "Is that any help to you?"

The Eagle started to wheel away again, curling its beak in a sneer—no small feat for a full grown eagle. Perri was still staring into his hat. He had begun to evolve an idea. The Eagle, he had noticed, was of the family *Haliaeetus Leucocephalus*—a Bald Eagle.

"My grandfather," reminisced Perri softly, but not too softly, "was an inventor. He concocted a fluid that would cure baldness."

Hastily uncurling its beak the Eagle turned about with pathetic eagerness.

"That," said Perri, "was fair play."

"What was fair play?" inquired the Eagle.

"Turn about," said Perri brightly.

"Come, what about that cure?" snapped the Eagle, tired of all this nonsense.

"I happen to have a small phial of it with me," replied Perri, whipping out a pint of pre-repeal Scotch. "This," he remarked, gazing fondly at the object in his hand, "will raise hair on a billiard ball."

The Eagle's face fell, but with a quick motion he scooped it up again. "What has that to do with me," he asked plaintively. "I can't turn myself into a billiard ball just to accommodate your grandfather."

"You can pretend you're a billiard ball, can't you?" said Perri severely. "Not only that," he added, pressing his point (and Perri always kept his points well pressed), "but if I am not taken down from here pretty soon, otherwise known as pronto, I am going to whip out another eagle mating call and let the devil take the hindmost, willy-nilly."

A little startled at being so rapidly recognized, Willy Nilly suddenly relented. "I'll take you down, Perri," he said, "but please don't tell my wife."

"Of course I won't, Willy," said Perri magnanimously, knowing full well he couldn't tell the Eagle's wife from a hole in the ground, or from a hole-in-one, or from any old port in a storm. Or, for that matter, even from any old sherry.

With one fell swoop, the Eagle dropped toward Perri. Perri closed one eye slowly and gazed at the talons outstretched toward him. "A very talented fellow, I might guess," said Perri, tongue in cheek—and a silly place to keep it, I must say.

With a shriek of hysteria, or perhaps even of apple blossoms, Willy Nilly buried his claws in Murgle's vest and, with a tremendous flapping of wings, tore him loose from the pipe and carried him off across the desert. As he flew, the Eagle looked down upon Perri with a malignant gleam in his eye. Another gleam in each eye, and that would have been a malignant two-more.

(What will the Eagle do with Perri? Is our

hero destined for a fate worse than death? Or will everything be hunky-dory, as Perriwether predicted? And what will become of lovely Lili, still marooned on the mantelpiece? See next issue right away. Or wait till it's published—what's it to me!)

There has been tremendous speculation over the sea monster found recently in British Columbia. Scientists are toiling to reconstruct the remains of the frightful creature, dead for many weeks. Fishermen and ships' captains shake their heads in bewilderment. Scientific societies send delegates to ponder over the find.

Much ado about nothing. Probably just a film censor that took up swimming.

On current theatre marquees:

SHE LOVES ME NOT  
SHE LEARNED ABOUT SAILORS

ONE NIGHT OF LOVE  
THAT'S GRATITUDE

Have you ever noticed when two cameramen are talking together on the set they are never discussing cinematography? I recently overheard Joe Walker and George Kelley thoroughly dissecting the subject of corn-cures. George had an idea and Joe didn't seem to think so much of it.

"Well," said George, "I ought to know what I'm talking about—one of my ancestors traveled with William the Corn-curer."

"And I suppose," said Joe, "he was the one that wrote the first book on Phoot-ography!"

NEW ROAD TO SUCCESS. (From a current periodical.) Mr. Henry Waxman, portraitist supreme, claims that many motion picture stars go dead when they pose for the still camera. Mr. Waxman had to bump Helen Hayes under the nose with his finger to bring her to life. That made her mad. Being mad made her vivacious. That was how he wanted her.

Puckish Mr. Waxman.

GEMS FROM STUDIO PRODUCTION

SCHEDULES:

THE GIRL FRIEND, No. 3

Another Hollywood Romance.

LADY OF NEW YORK (If You Could  
Only Cook)

Our daily puzzle.

SURE FIRE . . . . . Shelved.

ONCE A GENTLEMAN  
\$25.00 AN HOUR

Not bad for these times.

UNKNOWN WOMAN  
I'LL LOVE YOU ALWAYS  
Seems like a waste of effort.

MAN PROOF  
A FEATHER IN HER HAT  
But little in her stomach.

GRACE MOORE, No. 2  
Well, imitation is the sincerest flattery.

KNEE-CAP REVIEWS

(No space left on my thumb-nails)

Get out your diving suits, Gentlemen and Ladies of the Cracker Barrel, and go to see two of the greatest tear-jerkers since Eliza scurried across the ice with the chee-ild in her arms. The two I mean, in order of perfection, are "The White Parade" and "Imitation of Life." Tears will flow copiously, the sobbing all around you will be nerve-wracking, and you'll have the sniffles for a week, but you'll love them.

"Imitation of Life" does an excellent job of dissecting one phase of the negro, or race, "problem." The film offers no panaceas, but it does show us a bit of the little hell we whites have made for those negroes who long for the equality so blithely promised all who bask in the benign shadow of the American Constitution. Claudette Colbert gives her customary delightful, breathtakingly real performance. Warren William, although he has not yet comb-

ed out the last vestiges of his staginess, is excellent. Louise Beavers is priceless as the faithful colored mammy, and Fredi Washington, technically the true heroine of the story, performs excellently and certainly does not deserve to be ignored in the billing as she is. Neither does Rochelle Hudson deserve to be mentioned last like this, as she is quite scrumptious, a splendid little actress, and within a year may easily become, as that noted commentator Louella O. Parsons recently remarked, one of our outstanding film actresses.

As for "White Parade," I cannot say too much for it. It is superb. The picture is put together like a fine piece of mosaic. For every sob there is a chuckle, and the story is human and real throughout. Loretta Young's is the outstanding performance. Loretta is beautiful enough to get by in a deaf-mute's country, but she gives a performance here that definitely stamps her as a fine actress. John Boles does as well as possible with a necessarily thankless and inconsequential role. The photography is notable.

Both of these pictures are playing to capacity houses. And when John Public pays to go in a theatre and cry, prosperity is with us again.

Mr. Samuel Bayuk, omniscient manufacturer of cigars, visits fair Hollywood and assures us that progressive womanhood has taken up cigar smoking in earnest; he eloquently describes how cigars are poised adroitly in well-manicured hands as women converse in Eastern drawing rooms.

Mr. Bayuk, I have not doubt, is a man of integrity. It should scarcely be conjectured that the wish fosters the tale. But the movies will never go for the idea. The dear public couldn't single out the villain in a picture if it weren't for his big black cigar.

Besides, think of dainty Lilian Harvey pushing a big cigar along with her 87 lbs. Or Mary Pickford, or Janet Gaynor.

But then, of course, there is Mac West.

THE MACARONI BOWL—Mickey Rooney, even at his tender age, has bald spots above his forehead. But it is not due to the California sun. Mickey has to wear two horns for his part of "Puck" in "Midsummer Night's Dream" for the Related Warner Boys, and his hair has to be shaved off where the horns are attached \* \* \* June Knight is suing Paul Ames for half his income after twelve days of marriage. She should have been a little more patient, suffered along for another twelve days—and then sued for the whole salary \* \* \* Mary Carlisle's outstanding characteristic is her effervescence. She bounds around like an animated rubber ball. Bounce up and see us sometime.

Even on these brisk days, the Apollo Health Club is popular with the movie stars. They go to the club, which is on top of a twelve-story building, to exercise and keep in trim. \* \* \* The other day Mitchell and Durant were up there, practicing gags. Those two really take a lot of punishment in working out their routines. \* \* \* Creighton Chaney was doing back-bends and twists that only one athlete in five hundred can do. \* \* \* Super-athlete Harry Green got himself all set in a sun-bathing costume (consisting of just shorts)—and then found himself a shady spot and played cards! \* \* \* Joe E. Brown, Albert Conti, and Paul Kelly spend most of their time playing handball. \* \* \* El Brendel got himself all tangled up in a rubber skip-rope for the benefit of a newsreel. You wouldn't think a comedian had to keep fit. But El Brendel is in tiptop shape. I picked up the skip-rope and couldn't even stretch it. \* \* \*

Of course you know about the small-town bright boy who thought he could crash Hollywood as a sound engineer, because he'd always been such a good mixer at home.

And then there was the case of the new director who wanted to put a camera on water-wings to make a running insert of a duck swimming.

But the joke of the season was on the hungry extra who drank from the nitro-glycerine can because someone told him it was "soup."

## RECENT PHOTOGRAPHIC SOUND PATENTS

The following patents of interest to readers of *International Photographer* were issued during the past month from the United States Patent Office and have been compiled by Robert W. Fulwider, patent and trademark attorney, 800 Clem Wilson Building, 5225 Wilshire Boulevard, Los Angeles, California.

1,980,978—Method and Apparatus for Advancing Film Past a Place of Recording or Reproduction. Emil Anderson and Geo. Johanson, assignors to Aga-Baltic Radio H. B., Stockholm, Sweden.

1,981,033—Aperture Plate for Motion Picture Projection Machines. Augusto Dina, assignor to International Projection Corp., New York City.

1,981,069—Coordination of Motion Picture & Sound Records. Geo. Ramsey of Brooklyn, N. Y.

1,981,102—Photographic Material & Process of Making Same. Max Hagedorn & Gerhard Von Kujawa, assignors to Agfa Ansco Corp., Binghamton, N. Y.

1,981,132—Composition for Non-Inflammable Film. J. F. Walsh & K. Flynn, assignors to Celluloid Corp., East Orange, N. J.

1,981,185—Follow Focus Mechanism. Geo. Mitchell, assignor to Mitchell Camera Corp., West Hollywood.

1,981,207—Sound on Film Recording Camera. Chester Tappan, assignor to General Talking Picture Corp., New York City.

1,981,255—Motion Picture Projector. Emil Vollenweider, Sacramento, California.

1,981,332—Film Splicer. Harold Rohrdanz, Inglewood, California.

1,981,368—Apparatus for Splicing Films. John Maurer & Holton Friend, assignors to Radio Corp. of America.

1,981,370—Film Feeding Device. Duane Mowat, assignor to Harry Vickers, Detroit, Mich.

1,981,425—Substratum for Photographic Elements. J. G. McNally, assignor to Eastman Kodak Co.

1,981,670—Safety Device for Motion Picture Projectors. Morris Schienfeld, Philadelphia, Pa.

1,981,922—Picture Projecting & Viewing Apparatus. Michael-Bowman-Manifold, Worplesdon Station, England, assignors to Elect. & Musical Industries, Ltd., Middlesex, Eng.

1,982,187—Apparatus for Copying Goffered Film. Arthur Wright, Forest Hills, N. Y. Ass. to Keller-Dorian Colorfilm Corp., N. Y. City.

1,982,209—Method of Embossing Cylinders for the Goffering of Film. Alphonse Gary, Paris, France. Ass. to Keller-Dorian Colorfilm Corp., N. Y. City.

1,982,210—Photographic Process. Clyde F. Gillette, N. Y. City. Ass. to United Research Corp., Long Island City, N. Y.

1,982,211—Composite Photographic Process. Clyde F. Gillette, N. Y. City. Ass. to United Research Corp., Long Island City, N. Y.

1,982,221—Soundproof Casing for Motion Picture Cameras. Charles E. McClay, Los Angeles. Ass. to United Research Corp., Long Island City, N. Y.

1,982,322—Apparatus for Making Motion Pictures. Irving G. Ries & Douglas G. Shearer, Los Angeles. Ass. to M. G. M. Corp. of Culver City, Calif.

1,982,530—Method of Projecting Cinematographic Pictures in Natural Colors. Paul O. Mikut, Dresden, Germany.

1,982,599—Method & Apparatus for Producing Moving Pictures. Earl I. Sponable, New York, N. Y. Ass. to Movietone, Inc., N. Y.

1,982,600—App. for Simultaneously Producing Moving Pictures and Reproducing Sound Pictures. Earl I. Sponable, N. Y. Ass. to Movietone, N. Y.

1,982,739—Motion Picture Apparatus. Kaden & Stiefenhofer. Ass. to Agfa Ansco Corp.

1,983,276—Driving Apparatus for Sound Film. Franz Ehrenhaft. Ass. to N. V. Kuchenmeister's International, Berlin, Germany.

1,983,402—Production of Motion Pictures in Natural Colors. Isaac Rodman. Ass. to Lektophone Corp., Jersey City, N. J.

One Year's Subscription to  
The International Photographer  
and  
The Cinematographer's Book  
of Tables

By FRED WESTERBERG

Both for . . . . . \$2.50

Offer Extended for the Month of  
January



"ArtReeves"

WE SELL

## Sound Accessories

- GLOW LAMPS
- MOTORS
- OPTICAL UNITS
- AMPLIFIERS
- RECORDERS

DEPENDABLE LABORATORY AND SOUND  
EQUIPMENT

Hollywood  
MOTION PICTURE  
EQUIPMENT CO. LTD.

645 North Martel Ave.

Cable Address—Artreeves  
HOLLYWOOD, CALIFORNIA, U. S. A.





# The Relationship Between Continuity and Cutting

By PAUL E. BOWLES

PART II.

(For Professional As Well As Amateur)

[In Part I we discussed the special filmic resources at the hand of the continuity man. The frame as an aid in concentrating the attention of the audience on the selected material from life, and the resources within the camera itself (focus change, panning and tilting, the dolly and crane shots) were brought to the attention of the reader. Filmic time and filmic space were pointed out as the time and space element in a new world—a new way of seeing things and sensing the passage of time, the cinema. These two peculiarities of the film, filmic time and filmic space were presented as elements of particular value in the presentation of a cinematic idea.—Author's Note.]

**I**T is with the compression of time and the contemplation of a smooth interflow of movement and thought that continuity and eventually cutting have to do. In Part I of these notations it was pointed out that only the material which was most essential, most important to the development of the drama should be allotted the emphasis of the closer shots.

The closer shots, *especially the close up*, are to put over some point in the story that would not be perceived by an audience in the longer set ups. The close up moves the audience from its accustomed *passive view of life* and presents a *point of action or re-action in a greatly magnified form*. Consequently the close up is of value to create new interest in the inner emotions of some character in whom heretofore the audience has had only a partial interest, their attention having been divided between two or more characters. *The close up is a moment of emphasis and shock to the lethargic audience-mind* and can be used as a very powerful resource when properly employed. Don't make the mistake of using the close up to "speed up" your action and leave yourself with no means of insistence or emphasis for your story and character high points. You don't *cut* tempo into your picture; *tempo (or timing) is inherent in the movement of the material and the climactic suspense of the plot*.

It is the selection of moments, reactions and characteristics within a situation and the anticipation of the way they are to fall one against the other that dictates the basic build-up of shots within a scene. What in a scene most pointedly puts across my idea? What are the essentials to which belong the special emphasis of the closer shots? These are the continuity man's questions. It is the part of the scene and not the whole, it is the selection of details and their juxtaposition that is important to the development of the continuity; the value of a reaction, the arching of an eye-brow or the contraction of a muscle packs the scene with *detail* which serves to make the situation *convincing*. These few points must constantly be borne in mind by the continuity man.

## *Psychological Value of the Long, Medium, and Close Shot*

Let us consider a few of the various shot positions before going further, because the long shot, medium shot, and the close up are others of the cinematic resources at the command of the continuity man.

In life we can see all around us at a glance; but if interested we focus on small points if we desire intimate

knowledge of a situation. Our scrutiny passes from hand to lip to eye uninterruptedly. When we are engrossed in what is happening our attention is always on the point where the expression is most intensified. In a room full of people we are attracted to the point in the room where the discussion or action is most intense. If we do not see clearly we go closer. If it is two who are engaged in some interesting activity a medium closeness is enough—but only for the nonce, in a moment we are focusing for actions and reactions, seeing each person in close up view.

*The cinema is the only medium which can simulate this smooth interflow of attention.* Wonderfully enough the camera and cutting make possible in the cinema the same mobility of vision that we know in life. Unlike the stage, the cinema affords us the opportunity to sit in one place and view a scene from many angles and degrees of closeness.

Curiosity is the force that drives us closer and closer to the subject of interest. While the spoken word may give us a clear enough idea of the situation we are following, there is somehow bound up in our experience the desire to watch closely the little movements of bodily expression which carry the subtleties of communication and manifest the mental processes of thought. These little movements make the situation interesting and human; they create in the spectator a conviction of reality and cause him to more readily participate in the vicissitudes of the hero. They are a *language in themselves* without which we would feel robbed of the true meaning of a scene. They may be called the *language of the body*, and are the uncontrollable sensory reactions to thoughts and inner emotions. Words may be twisted, carry double meanings, be misconstrued, but in the language of the body we have learned to read through the hypocrisy of the spoken word and interpret the registry of true expression.

The cinema is the only medium which can dig into a character's very soul by so enlarging his physiognomy that each sensory reaction is inescapable.

## *Plotting Action To Meet the Demands of Cinematic Presentation*

The very course of a story and the chain of dialogue, or titles, is a Thought Continuity in itself, and, while it offers cutting problems all its own, the main cinematic problem lies in the *regulation of action* through the Action Continuity. The movements of the material in the cinema serve to *blend* or *tie up* the whole scene or the whole picture. The Action Continuity must be developed to control the movements of the actors so that they (the movements) will *blend in from shot to shot* during the actual cutting of the film.

In most cases *cutting on movement* is the most used method of blending in a sequence of shots. Still, we must ramble here for a moment to consider some other types of continuity, each of which has its own blending force. (A blending force is a means—pyscological, idealogical, or visual—of tying together two shots.) In the main



there are two classes of continuity construction:

### I. REAL TIME AND SPACE CONTINUITY

In which all the movements and all the space and time in a scene are covered. In using this type of continuity we follow all the natural sequential action as one might in life or on the stage.

### II. FILMIC TIME CONTINUITY

In which the frame is the space boundary and the cadence of the drama the only limitation on time. Under this type of continuity, if the movement is continuous and progressive within the frame, or blended from one shot to another by some blending force the Action Continuity is in a measure acceptable.

In the Action Continuity we seek unity and congruence. If a continuity adheres to real time and space in its sequence, it is necessarily unified and congruous because it is held together by its relationship to our everyday experience with time and space. Each shot is a part of a room, or setting. When two shots, or parts are conjoined they are believed congruous because they both bear a relation to the whole geography of a set. All moves are thought of in terms of minutes, and as they are similar to everyday life they are unified by their relation to any ordinary sequence of moves. But when we branch out into a *filmic time presentation* of a scene, unity and congruence must be sought for in other forces—whether physiological or visual. So that under filmic time presentation we find, at least, these three types of blending forces:

### I. RHYTHMIC

In which the inherent beat of the material serves to glue together as a unit a number of angles and shots covering that material.

Much can be said about rhythm and its use in films. Somehow one must experiment to really understand the powers behind this type of continuity. To look at it briefly—we must understand that all things in life have rhythm. Rhythm is as much a point of character as Chaplin's cane. Scenes, factories, machines, countryside in the wind, trains, the sea, trip hammers, are char-

acterized by their rhythms; people are sluggish or alert, some waddle, some jolt. Mae West's most distinctive characteristic is a suave undulating rhythm. Garbo has a distinctly different rhythm than Will Rogers.

Our hearts beat out a rat-a-tat that courses its way to every remote section of our body. Our very tissues absorb its pulsations. Languid hearts motivate languid people, a nervous fluttering heart sends its possessor twitching and jerking through life.

Scenes have an inherent rhythm. Expository scenes are made up of slow, long cuts. Climactic scenes of short, fast cuts. Rhythm is present wherever there is movement. Rhythmic continuity is not arty—rather it is natural, and too often lacking in films.

Rhythm and timing approach synonymity so closely that you can hardly run a hair between the difference in meaning. Where you have one you almost invariably have the other.

Lack of rhythm results in ungainliness and in unwieldy and indeterminant locomotion.

Over stimulation of rhythm results in the dance.

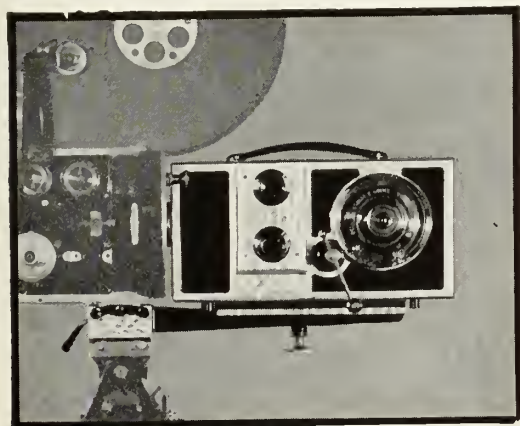
Lack of timing results in chaotic milling around and jarring discordance.

Over stimulation of timing would result in automaton movements.

"The rhythm of repeated movements of sound," says Dr. Boris V. Morkovin, "has power to suggest emotional moods just as words by associations bring back past experiences. The power of rhythm deeply rooted in early race experience has a magic spell (not unlike the incantations of sorcerers) far more powerful than words. Rhythm infects the spectators mind, arousing emotions into a state of activity by hint, and anticipation and expectancy of their satisfaction."

The rhythm in music is the most obvious unifying

(Turn to Page 28)



B & H Cooke Varo Lens in photographing position on the Bell & Howell Camera.

The Bell & Howell Cooke Varo Lens is packed with drama, holding within its amazingly precise complexity a thousand possibilities for the kind of a scene that stirs the emotions of millions. An artist breathing life into a daring composition, the cam-

### B & H Cooke F 2 Speed Panchro Lenses

B & H F 2 Speed Panchro Lenses are corrected for the blue and red, rather than blue and yellow rays as dictated by today's lighting and films. Eleven focal lengths, 24 to 108 mm.

B & H Cooke F 2.5 Panchro Lenses, with the same correction and at lower cost, meet many needs where such speed is adequate. Seven focal lengths, 35 to 162 mm. Write for prices.

## DRAMA at the touch of a lever

eraman moves a crank and creates a masterpiece.

At F 3.5 the range is from 40 mm. to 50 mm.; at F 4.5 from 40 mm. to 85 mm. and at F 5.6 and F 8 the full "zoom," from 40 mm. to 120 mm., is obtainable. Adjustable stops limit the "zoom" as desired. One crank controls all moving parts. The iris is varied automatically with the focal length to keep the *f/* value constant. Gives critical sharpness and *full* anastigmat correction at all points of the "zoom." Close focusing is done with auxiliary lenses. Write for full details. Sometimes available on rental to responsible studios.

## BELL & HOWELL COMPANY

1849 Larchmont Ave., Chicago;  
11 West 42nd St., New York;  
716 North La Brea Ave., Hollywood; 320 Regent St., London  
(B & H Co., Ltd.). Established 1907.

# The Hollywood Notebook

By EARL THEISEN  
(Associate Editor)

No star in the history of the Fox Film Corporation has inspired so many authors as has Shirley Temple. Famous writers and hundreds of new writers have flooded the scenario department of this studio. If all the stories were filmed, "Shirley Dear," as she is known in the studio, would be a grandmother before the job could be finished. In the four weeks that "Bright Eyes" was in production more than 300 manuscripts were received.

Spencer Tracy, who has a string of six polo ponies, has purchased a race horse named "Troubadour." After making the purchase he went out to see the hay-burner in action. Tracy saw the name did not fit the horse so he changed it to "Wait For Me."

While the stage designer has only to design two or three back-drops with sets of furniture for each, the motion picture architect must execute with more historic and elaborate cinematic perspective and detail. The usual procedure in making a screen set is to, first, have an artist make a pencil sketch which the art director approves. From this is made a detailed sketch which the director and producer approve. From the detailed sketch is made a miniature set to serve as a guide for the construction department. For instance in the picture, "The Crusades," now in production by Cecil B. deMille, Roland Anderson, who is planning the sets, has a two months job on his hands. Among other things he has had a complete miniature set made of Jerusalem, one of Windsor Castle, a cathedral in Normandy and another in Acre as it was in 1191 A. D. Because this last named cathedral was destroyed about that time it was particularly difficult to reconstruct a model of the original, but since movie veracity demanded it, old historical books were located which supplied the necessary information. The masterpiece among these models is the one of Windsor Castle as it was 800 years ago. This model has moats, drawbridges, port-culli and all the other essentials of Windsor Castle of those days. One interesting custom of those days is brought to light in this model castle—that is, kettles of molten lead were kept on the parapet to pour on unwelcome callers. The castle is replete with inch-high figures of hermits, damsels, Galahads, etc.

A trip through one of the studios is like a tour of the world. In three hours it is possible to see motion picture reconstructions from the four corners of the earth. On the Paramount lot, there is the Claudette Colbert New York Night Club set used in the "Gilded Lily;" on the George Raft and Carole Lombard stage is the "Rhumba" set of Havana. On the Joseph von Sternberg stage was the Spanish set of Caprice Espagnol; in "Ruggles of Red Gap," featuring Charles Laughton, was a set of a scene in London; in "All the King's Horses" is a mythical country; in Ben Bernie's "One Night Stand," is of middle

Western United States atmosphere; in Bing Crosby's "Mississippi River." In Hollywood at any one time can be found sets made to represent scenes from any country.

Elliott Humphrey, of the "Seeing Eye," a philanthropic organization which trains dogs to lead blind persons, was brought to Hollywood by Paramount. He is to train the dog, Lightning, to work with Gary Grant in "Wings of the Dark." The "Seeing Eye" trains the dogs in three to five months, after which the dog and blind man live together at the Seeing Eye headquarters, at Morristown, New Jersey, for a month before they are allowed to go home together. The best dog for this purpose is the female German Shepherd which has a good coat to stand all weathers, strong feet, a certain sense of responsibility and initiative enough to overcome all difficulties. It is necessary that the dog does not blindly obey when ordered forward otherwise he might lead his master into a ditch. I have a dog that leads me everywhere each night when he goes on his smelling excursion. He looks like a white German Shepherd, although I believe he is a pedigreed Swiss Cheese Hound. His name is Jake.

Have you visited the Farmer's Market at Third and Fairfax in Hollywood? Each day the farmers from the Southern California farms drive to the place with a one day supply of goods in their trucks. At the market they rent a stall for one dollar and then sell their products directly to the customer. Many of the rare foods raised in Southern California may be found in this market.

Mala, the hero of W. S. Van Dyke's "Eskimo," who has withstood the icy blasts of the Arctic, has lately been walking about Hollywood in an overcoat, and he is complaining of the cold.

Louise Fazenda's laughter rules. "Comedy," Louise Fazenda believes, "is based on psychological reactions." According to her the fundamentals are:

"Something unpleasant happening to somebody else."

"Mistakes of a comedian that make his audience feel more intelligent than he."

"Contretemps that result in the comedian falling into a pit he dug for another—in other words retribution."

"Search for some lost object that constantly is hidden by accident in a new place."

"The eternal triangle from a comedy angle, mistaken identity, or an outraged dignity complete the list."

Studio wags have been putting Nelson Eddy on the spot because he must wear long hair in "Naughty Marietta." The wags have been using the old, old gag of "where is your violin." Nelson now carries his makeup in a violin case.

## PHOTOGRAPHIC SOCIETY OF AMERICA

"The Photographic Society of America, which constitutes the recent expansion program of the Associated Camera Clubs to extend service to those interested in photography whether they be members of clubs or not, will begin its second year by publishing its bulletin in printed form with a few excellent illustrations. The Society is also planning a national meeting in April of 1935 at the time

and in conjunction with the Pittsburg Salon of Photography at Pittsburg. Those interested in the work of this organization may address its secretary, B. H. Chatto, 1300 Milton Avenue, Pittsburg, Pennsylvania."

Respectfully requested,

HILLARY G. BAILEY.

1935  
PROSPERITY  
HEALTH  
HAPPINESS

J. E. BRULATOUR, INC.  
EASTMAN FILMS



## "THE OLD MOVIE DAYS"

Under this head Paul Powell is writing a series of stories of the times before sound, which appear three times a week in the *Pasadena Independent*, published by Fred F. Runyan.

Paul Powell needs no introduction to the moving picture public. Just why he is not still directing motion pictures is a question that must be answered by himself, but if the reader happens to be one of those who does not know Mr. Powell, it may be said here that he is one of the best directors that ever handled a megaphone and may he return soon to his rightful place in the spotlight of the screen. Here's the yarn:

Candor compels the admission that the story was pretty bad.

It was handed to the writer by the late Abraham Carlos, for several years general manager of the William Fox West Coast studios, and the official who was in direct charge of all the company's production activities.

Mr. Carlos knew nothing about the story except that it had been sent on from the New York office with instructions to put it into production at once. The New York office had also expressed the opinion that it seemed to be a first rate vehicle for George Walsh, one of the Fox stars.

### *Puzzling Story*

Having just been given the assignment to direct the next Walsh picture, the writer took the story home that night to examine. To say that it puzzled him would be a gross understatement. It amazed him that the head office, usually so critical about expenditures on the coast, should have wasted postage on it.

Hundreds of similar scripts in those days poured into the studios from amateurs who had heard that the moving picture companies were paying fancy prices for stories, and who felt confident that their ideas would make better pictures than they ever saw on the screen, but stories such as the New York office had approved never got past the boys who opened the mail.

### *Gets Instruction*

This one was amateurish to the last degree, incoherent and wholly devoid of plot. Assuming that a mistake had been made the writer returned it to Carlos next day. Carlos read it and agreed that it was impossible. He wired New York about it and received a laconic message repeating the instructions to produce it. In the face of this order the story could not be ignored. It was finally decided to retain the title and put a couple of contract writers in the studio's story department to work on an entirely new story which would fit the title. This was what was eventually done, and the picture was made. There was, of course, nothing in it remotely resembling the original script.

### *Believe It or Not*

While the picture was being prepared for shipment to the New York office the writer went to work on a new picture. He was on location with his company when the previous picture reached the head office. Next day came a telegram from Carlos stating that in accordance with telegraphic instructions received from New York he was obliged to discharge the writer instantly and recall the company to the studio.

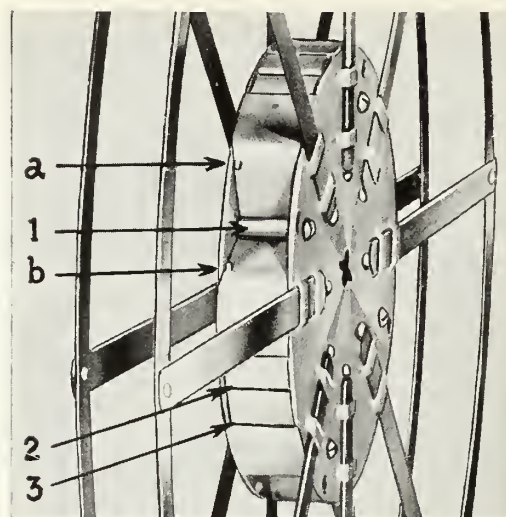
On returning to Los Angeles the writer found Carlos mystified over the instruction to fire the director without any reason being assigned, but he had no alternative.

The explanation did not develop until weeks later when Carlos returned from a visit to the New York office.

What he learned there was, that the script was the maiden effort in scenario writing of William Fox.

Of interest to both amateurs and professional pro-

## NEW DE VRY REEL FOR 16 MM.



jectionists is the new reel just placed on the market by H. A. DeVry, Inc. Rims and spokes are made entirely of spring steel bands, so that no matter how violently reel is bent, it immediately springs back in perfect alignment. Even stepping on it doesn't hurt it. This feature is greatly aided by spaces left at the bottom of each spoke, for *molecular expansion*—a well known characteristic of any metal which suffers violent strain. No existing reel has made provision for this scientific fact. The spokes are *riveted* to the rims—not *welded*, as is customary, because welding adds to brittleness.

### *Automatic Clipping*

Another innovation. The operator can clip film to reel as easily in the dark as in the light. Merely lay film over a well in top of hub, and press down lightly with finger. Perforations catch automatically in two prongs, which hold it securely until end of run.

The reel is for 16 mm. film and holds 1600 feet. A companion reel for 35 mm. film is under way.

## OBITUARY

Funeral services were held December 28 for Jules Cronjager, one of our pioneer motion picture cameramen, who died Christmas day, ten days after suffering a paralytic stroke. Two of Cronjager's nephews, Eddie and Henry Cronjager, Jr., are also cameramen. Jules was 54. The services took place at the Reynolds-Eberle Mortuary in Pasadena.

Phone GLadstone 4151

## HOLLYWOOD STATE BANK

The only Bank in the Industrial District of Hollywood  
under State Supervision

Santa Monica Boulevard at Highland Avenue

Scheibe's FILTERS

In World-Wide Use

produce Moonlight and Night  
Effects in Daytime-Fog Scenes-  
Diffused Focus, and many other effects  
With any Camera - In any Climate

George H. Scheibe

ORIGINATOR OF EFFECT FILTERS  
1927 WEST 78TH ST. LOS ANGELES, CAL.

SINCE 1916

HOLLYWOOD  
STUDIOS  
USE THEM  
IN EVERY  
PRODUCTION

# "THE HORSE IN MOTION"

By G. E. VAN GUYSLING

[From "A Series of Sketches" by Laura Holloway, published in 1883 by Bradley, Garretson and Co., Philadelphia, and contributed by George E. Van Guysling, of Los Angeles. A story of Muybridge's famous demonstration. This was written in 1833, ten years before Senator Stanford's death and, therefore, is claimed by the author to be the authentic story of the Muybridge transaction.]

**W**RITERS attempting to cover the early inception and history of the moving picture art, invariably refer to the work of Prof. Eadward Muybridge, crediting him in a general way with its introduction. Personally, I do not attach much value to this view, as there is little if any connection to be traced directly from his early work.

However, the story of Professor Muybridge's taking the series of photographs referred to by subsequent writers, as given by a writer of that time in a narrative on the life of Leland Stanford, is of such interest that I believe it would prove of equal interest to many readers of *The International Photographer*. The story as here related follows:

"Not many of our millionaires have turned authors; but ex-Governor Stanford is virtually the author of a most interesting book on the "Action of the Horse in Motion," although two other persons took a share in its production. The origin of its inception is as follows: While in California about 1870-71, Mr. Stanford possessed among his numerous fine horses a remarkably fast trotter named Occident. This animal had a most remarkable stride, twenty-three to twenty-three and a half feet and, watching this extraordinary animal, his owner became convinced that at certain instants the entire body of the horse was free of the ground, but so rapid was the motion that it was difficult for lookers-on to agree as to the fact. In 1872 a photographer named Muybridge was employed by Mrs. Stanford to take views of the house and grounds, and the ex-Governor talked with this artist as to the possibility of taking instantaneous views of moving objects, hoping that his favorite trotter might thus be taken, and the question of the precise action of "the horse in motion" be demonstrated on the photographer's plate. The artist thought it could not be done, that a "blur would be the only result." Mr. Stanford, however, insisted that with the very best apparatus, and an extremely sensitive plate, the thing was feasible; and he offered to assume all the necessary expense to secure such improved plate and camera.

Among the ingenious men employed in the car-shops of the Central Pacific Railroad Company at this time, was a Mr. Montague and a Mr. Pruiere, whom Mr. Stanford engaged to assist Mr. Muybridge in constructing an improved instrument and the result was the taking of a picture of a horse in motion in about the fiftieth part of a second. The picture was imperfect and somewhat obscure, but it satisfied Mr. Stanford that the horse was really entirely off the ground when the impression was taken; but as there was only one instrument used and one picture obtained, it could not be decided how long the horse remained without touching the ground.

After an absence of several years from California, the artist returned to the Golden State and was again employed on the Stanford estate, taking views of the improvements which had been made. He also announced that when in London he had learned that highly im-

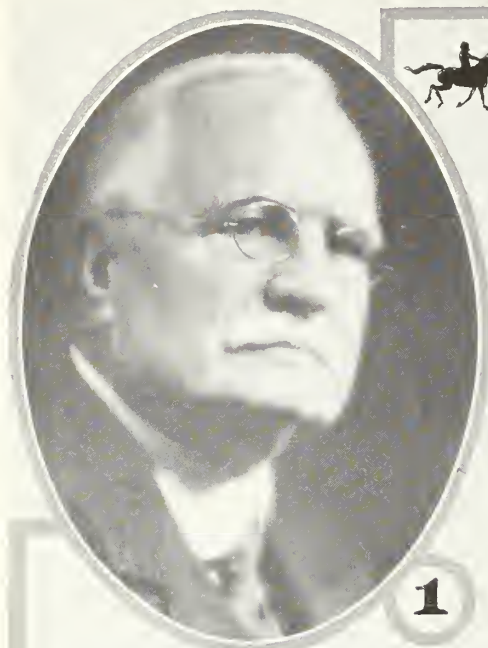
proved cameras had been made there, but being very expensive he had not provided himself with one. Mr. Stanford then authorized him to send to London and procure the very best at his expense. This was done, but the next picture of Occident showed a different position, which, however, did not militate against Mr. Stanford's theory, but suggested the idea to the latter that a series of cameras should be used to give the entire action of a horse in rapid motion and not one portion of the gait only, as must always be the case with a single camera, and he again authorized Mr. Muybridge to procure twelve cameras. The twelve cameras came and were so perfectly arranged that a view was taken in about the five-thousandth part of a second. Afterwards twenty-four cameras were used. The most elaborate preparations were made to secure absolute perfection; a building was specially erected, backgrounds arranged and the machinery to control the operation, so as to insure the cameras doing their work in harmony, was carefully adjusted. On testing the arrangement it was found that the speed of the clock-like movement was not in precise accord with the speed of the animal, and Mr. Stanford then suggested that only the rapidity of electricity would be found sufficient. This idea, we believe, originated with Mr. A. N. Town, a well-known judge on the race-courses of the West. Again Mr. Stanford employed Mr. Muybridge to procure the services of practical electricians to assist in taking the pictures. To measure the stride of the horses, both in running and trotting and other purposes, marked boards, measuring feet and inches, were laid between the camera and the track. All the experiments and the services of those employed were made at the expense of the ex-Governor, who was determined, if his theory proved correct, to give the result to the world.

When Mr. Stanford had definitely made up his mind to publish his book, he employed Dr. Stillman to assist him. Several horses were killed and dissected by the doctor so as to secure perfectly accurate illustrations for this interesting work, which was really written by the latter under the inspiration of his employer, Mr. Muybridge being still employed to take photographs under Dr. Stillman's direction. The machine combining the twenty-four cameras operated by electricity was called a "Zoopraioscope." This, though the combined result of Mr. Stanford's ideas and consultations with several others, was patented in the name of Mr. Muybridge at the ex-Governor's expense. And, to further protect all of this artist's rights, he allowed him to have an interest in the copyright describing it, though a third person employed by Mr. Stanford might also have claimed some interest in it. This was Mr. William Hahn, an artist from Dusseldorf, who drew from the photographs all of the anatomical pictures.

This book, "The Horse in Motion," published in 1882, is a very valuable contribution to science. It is

(Turn to Page 18)





1



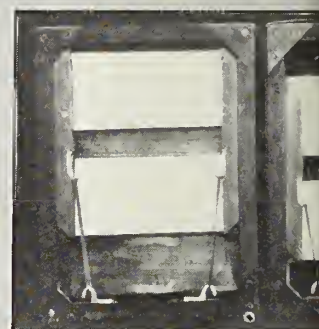
# "THE HORSE



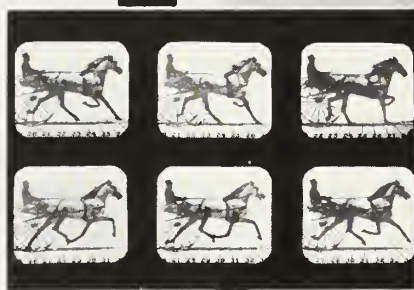
J



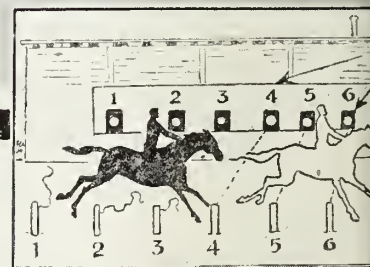
5



3



L



(1) John D. Isaacs, mechanical engineer, who devised the electrical equipment used to set off the twenty-four cameras shown in Fig. 7; (2) Eadweard Muybridge, photographer in charge of the now famous epoch-making Stanford-Muybridge experiments at Palo Alto, California; (3) Professor Walter R. Miles, director of the Psy-

chological Laboratory at Stanford University, specialist in the photography of the moving eye; (4) Leland Stanford, founder of Stanford University and sponsor of the Muybridge experiments; (5) Showing part of the experimental set and reflector used in the Muybridge tests; (6) View of the entire set showing men stringing the threads from the reflector across the





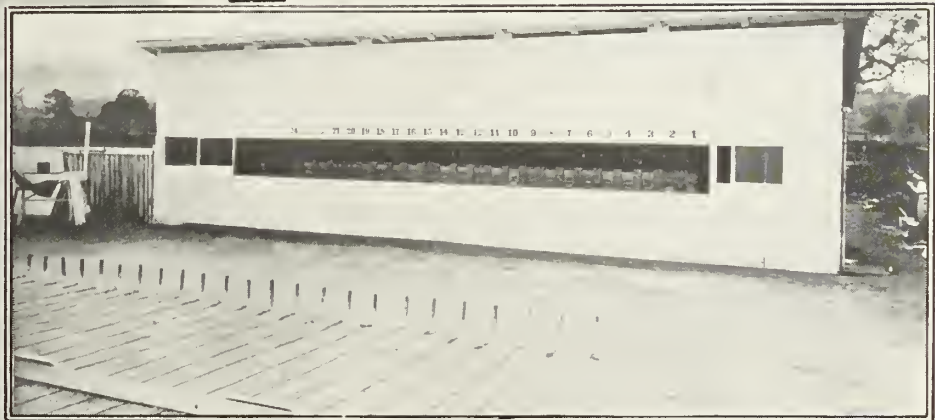
# N MOTION"



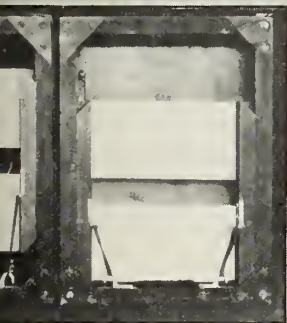
K



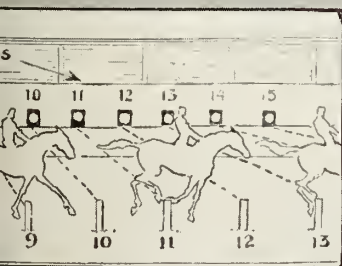
2



7



M



4

John Corydon Hill



ing field to connect with the cameras; Fig. 5 illustrates the method of releasing the camera shutters; (7) The right side of the experimental facility showing the twenty-four cameras lined up for the shots; (8) Closeup of three of the cameras illustrating the "before, during and after" of the contact and the method of holding up and releasing the focal planes by means of elastics; each

camera was equipped with a double-focal plane for speed, one aperture moving up and the other moving down; J. K. L. M. 24 shots of a trotting horse, the contact being made by a steel tire of the sulky running in a steel channel; in this case the shutters were released by the steel tire making intermittent contact with the ground wires shown in Fig. 5.

## DEPARTMENT OF CINEMATOGRAPHY

THE UNIVERSITY OF SOUTHERN  
CALIFORNIA

UNIVERSITY COLLEGE

WINTER QUARTER 1935, JANUARY 7 TO MARCH 23  
NIGHT CLASSES

Chairman, Associate Professor, Dr. Boris V. Morkovin.

Lecturers: Frank Capra, Earl Theisen, Wm. F. Campbell, Arthur J. Campbell, A.S.C., J. Farrell Macdonald, Hugh B. Gunter.

Assistants: Perle Eddy, Frances M. Christeson, Theodore B. Karp.

*Fundamentals of Motion Picture Production*, Cinematography 129 f. Time: Mondays, 7 to 9:20 P. M. Place: 214 Bridge Hall, S. C. campus. Audience psychology. Stage and screen technique. Story and continuity. Acting. Camera and Light. Art. Sounds and music. How to direct. Animated cartoon. Motion picture phraseology and studio routine. History of American and European cinema. Lectures. Films. Experimental work in Cinema Workshop. Selective: 1. cinema story clinic, 2. acting and directing in Cinema Workshop Theatre, 3. work in technical group, production of small pictures. Instructor: Boris V. Morkovin.

An experimental sound picture, "LUCKY STRIKE" will be made by students. Names of all participants will be used in the cast.

*Dramatic and Cinematographic Acting and Expression*, Cinematography 150. Time: Wednesdays, 7 to 9:20 P. M. Place: 209 Bridge Hall, S. C. campus. Stage and screen presence, voice, diction, make-up, costuming. Pan-

tomime, gesticulation, spacing, business. Studio routine of actors. Experimental work in Cinema Workshop Theatre. Instructor: J. Farrell Macdonald.

*Motion Picture Camera*, Cinematography 180. Time: Thursdays, 7 to 9:20 P. M. Place: 209 Bridge Hall, S. C. campus. Optical principles. Camera development, construction and operation. Laboratory experimental work in making small pictures. Sensitometry. Process and illusionary photography. Studio and exterior lighting. Composition. Make-up. Relation of sound to camera. Studio routine. Instructor: Arthur J. Campbell, A.S.C.

*Methods of Teaching Motion Picture Appreciation*, Education 175-C. Time: Mondays, 7 to 9:20 P. M. Place: Transportation Building. Materials and methods of motion picture history and appreciation work in the upper grades and high school. Practice lesson planning, and construction for course of study. Standards and criteria of appreciation from the point of view of dramatic and cinematographic excellence. Social and educational values of motion pictures. Instructor: William G. Campbell.

Successful students may receive a special statement of work in the Department of Cinematography. Special courses may be arranged for groups organized within each studio. Inquiries regarding courses may be addressed to University College office, 1300 Transportation Building, Los Angeles. TRinity 1701.

### APPRECIATION

I. A. T. S. E., Local 659, wishes to express appreciation to Brother Greenwald, of Los Angeles, and Brother McHenry, of the Golden Gate Wing, for their fine spirit of co-operation. This same appreciation is extended to all other newsreelers on the Pacific Coast. Local 659 has a hundred percent of newsreel men West of the Rocky Mountains. John McHenry was recently re-elected steward; Geo. Lyng, elected assistant steward; Lloyd Combs, secretary.

### THE HORSE IN MOTION

(Continued from Page 15)

a large, handsome quarto, containing over one hundred full-page illustrations, some of the pages containing many separate figures showing the position of the limbs and the general action of the horse (and some other quadrupeds) in running, trotting, leaping, walking, etc. These are a most curious study and fully confirm Mr. Stanford's theory, that, both in running and trotting, the horse is occasionally entirely free of the ground, a fact never before demonstrated, though sometimes discussed by turfmen and others. There is also a series of twelve colored plates showing the osseous and muscular development of the horses. These pictures were executed by a process known as photo-engraving. Several classes of persons will find much matter for thought in this volume, but to none has the revelations of the camera been so much of a surprise as to the artist world. One famous painter, looking critically at this collection of horses in motion, with an accent of deepest chagrin, exclaimed: "Why, there never has been a horse painted correctly since the world began." And, in fact, he was nearly right. The conventional horse of the painter bears no resemblance, in the action of its limbs, to the realistic horse of the camera. The experiments were mostly made in 1878, on Mr. Stanford's private track at his country residence, Palo Alto, in California. The electric current was applied to open and close the shutters before the cameras, no other made being found quick enough. The cameras were placed at the distance of twelve inches apart.

## ROLLEIFLEX

Regarded by Mr. Herbert C. McKay, F.R.P.S., and Dean of the N. Y. Institute of Photography as a camera which amateurs "never have to discard—for one more in keeping with their advancement," the Rolleiflex daily receives fresh laurels in such widely divergent fields as press photography and commercial work. A commercial photographer writes that "there is nothing to



equal it for outdoor groups, especially weddings." In press photography, its instantaneous ease of operation, its rapidity, its extreme depth of focus and its needle-sharp, automatically obtained focus render it the ideal camera in lieu of the bulkier camera formerly in vogue.

BURLEIGH BROOKS

127 West 42nd Street New York

## ROLLEICORD



# *Still* UNIQUE

---

WHEN it was introduced in 1931, Eastman Super-Sensitive Panchromatic Negative was definitely a “new and different” product. And there is still no other film like it...no other has wrought comparable changes in motion picture procedure, or contributed as much to motion picture quality. It is only natural that this Eastman film should be unique, also, in the enthusiasm which it continues to arouse among cameramen and producers. Eastman Kodak Company. (J. E. Brulatour, Inc., Distributors, New York, Chicago, Hollywood.)

---

EASTMAN *Super-Sensitive*  
*Panchromatic Negative*

# WHAT IS THE HUNCH?

By GEOFFREY HODSON

*Author of The Science of Seership, Some Experiments in  
Fourth Dimensional Consciousness, Etc.*

*(Written for The International Photographer)*

The sudden flash of an idea into the mind, the instantaneous perception of a principle, a truth, or of the solution to a problem, whether of science, mechanics, business, or of personal conduct, is popularly called a "hunch."

Since this faculty bestows enhanced power upon those who possess it, an article on the subject has a logical place in the series of those contributed by the author to this magazine.

Psychologically speaking, the "hunch" is an intuition, and intuition has been defined as follows:

"Intuition is primary knowledge, antecedent to all teaching or reasoning."—*Practical Standard Dictionary.*

"There is an intuition which is verily the Voice of the Spirit."

"Intuition is a recognition of truth at first sight."—*Annie Besant.*

"Intuition soars above ratiocinative thought; changeless, infinite; 'that absolute wisdom' which transcends the ideas of time and space. It is the 'eye' of the seer; a faculty through which direct and certain knowledge is obtained. It is 'in the sanctuary of the heart'; does not waver between right and wrong; it is clear vision in a region where truth dominates, as if all knowledge was brought to a head. 'By will he collects his mind into itself'; it seems to act 'in a vertical manner.'"—*H. P. Blavatsky.*

"To know consists rather in opening out a way whence the imprisoned splendor may escape, than in effecting an entry for a light supposed to be without."—*Browning.*

Examples of true intuitive vision are provided by Emerson in such striking sentences, as:

"Our globe, seen by God, is a transparent law, not a mass of facts."—*(Circles.)*

"And this, because the heart in thee is the heart of all; not a wall, not an intersection, is there anything in Nature, but one blood rolls uninterruptedly, an endless circulation through all men, as the water of the globe is all one sea, and, truly seen, its tide is one."—*(The Over-Soul.)*

A report on this subject was recently made by Professor R. A. Baker, of the College of the City of New York, who, with Dr. Washington Platt, of Syracuse, has sent questionnaires to 1,450 scientists, inquiring into their experience with "hunches," as applied to their work. Of the 232 who replied, only 17 per cent had never experienced the phenomenon, 50 per cent had done so occasionally, and the remaining 33 per cent, frequently.

The "hunch" as defined by Professor Baker, is a unifying or clarifying idea which springs into consciousness suddenly as a solution to a problem in which we are intensely interested. "In typical cases," he adds, "it follows a long period of study, but comes into consciousness at a time when we are not consciously working on the problem. It springs from a wide knowledge of facts, but is essentially a leap of the imagination, in that it goes beyond a mere necessary conclusion which any reasonable man might draw from the data at hand. It is a process of creative thought."

Hunches vary in their degree of completeness or accuracy. The overwhelming majority who reported having had them, said that the revelations came as a central idea only. Several stated that when the central idea presented itself, their minds then with great rapidity, filled in the details. A small but notable minority, said that the hunch presented the plan complete in all details. Only 7 per cent reported that their hunches always turned out to be correct. The rest gave figures of correctness, varying from 90 to 10 per cent.

Nineteen per cent said that their minds were fully conscious when the hunch came along; twenty-eight per cent said they were "on the margin of consciousness," and thirteen per cent said that they were unconscious. Forty per cent were not clear in regard to this, or gave no answers.

Fifty-three per cent of the scientists answering the

questionnaire said that they deliberately used devices to create conditions favorable to the hunch. The commonest of these devices was "temporarily abandoning the problem and taking up other work." Others included a period of idleness and complete relaxation not spent in attacking any other problem; going over the problem just before retiring for the night; physical occupation or exercise, and the use of stimulants.

Professor Baker, discussing the conditions for helpful action of the mind on the margin of consciousness and beyond, says:

"We must have a great interest in the problem and a desire for its solution. Material should be stored in the mind in a systematic fashion, and it should be well digested so as to be useful. There must be a sense of well being and a sense of freedom from interruption. There should be an absence of obstacles to the proper functioning of the mind. And, finally, there are certain types of direct positive stimuli to mental activity. The last includes some form of contact with other scientific minds, either through reading or discussion."

The value of temporary abandonment of a problem is greater than that of mere rest, Professor Baker believes.

Intuition is regarded by certain schools of thought, particularly those founded upon the principles of occult science, as the sixth sense, eventually to be fully developed and added to the present five. Occult physiologists state that these have developed successively through long evolutionary periods. The first sense was hearing; then came touch, sight, taste and smell. All of these were doubtless present embryonically in the earliest races, but have gradually developed increase of range, accuracy and sensitivity. That taste and smell, for example, are still but partially developed is shown by the wide variations of sensitivity in the different races. The more primitive peoples still bury their meat in order that it may "mature"! Whilst among those apparently more civilized the custom remains of hanging game until it becomes "high" and of maturing cheese to strengthen the taste. The use of peppers, chiles and other strong seasoning by certain peoples, whilst others cannot endure their pungency is an example of varied degrees of taste development.

Whilst the five senses are still being refined and perfected, the sixth sense is beginning to show itself, to be recognized and, as Professor Baker's report shows, in some measure to be used. Many physicians employ it almost unconsciously in the sudden flashes of diagnostic insight of which doctors give testimony. Later races will employ it with the same certainty and accuracy as are now obtained from normal sensory perceptions and modes of feeling and thought.

It allows the scientist to attack his work again from a new intellectual standpoint, especially if he has not worked on the matter for some time. "A problem unsolved remains in the mind as a challenge to its ability," he says. "Again and again, semi-consciously, unconsciously, the mind attacks the problem. While we are constantly at work on something else, this process continues. When finally we take up the problem anew, the mind has made actual progress toward its solution."



Sometimes, indeed, the complete solution appears in the form of a hunch. There are many instances of this recorded in literature, as well as in answers to our questionnaires."

The author believes this faculty can be cultivated by the practice of deliberately evoking it in the solution of problems. Three essentials govern its development. The first is based upon the fact, as Browning observes in his quoted statement, that truth lies within man and within the object of research—not without. It is the habit of turning inwards for the solution of problems. The second is the capacity for mental stillness; and the third, the regular practice of intuitive contemplation in which the mind is withdrawn from outward interests and focused unwaveringly on great fundamental truths.

These three, practiced regularly, will undoubtedly awaken and develop the power of the hunch. Its full expression is a science of which some of the principles have been expressed in various articles from the author, appearing in this magazine. His motive in writing them has been not only to provide interesting reading, but to open up for interested readers the study of that oldest and greatest science of all, the science of self-illumination, the science of soul.

### CARL DREHER REAPPOINTED

Carl Dreher, who has served as Chairman of the Board of Judges for the Scientific and Technical Award in each Awards contest for the past three years, has again been appointed to that office by Nathan Levinson, Chairman of the Technicians Branch.

The full membership of the Board is Carl Dreher, Chairman, Harry Cohan, Bernard Herzbrun, Fred Jackman, Ray June, Wesley C. Miller, William Mueller, Emil Oster, Max Parker, and Gordon S. Mitchell, Manager of the Academy Technical Bureau.

Each studio, equipment company and technician in the industry will be invited to submit nominations for devices, methods or equipment which have been developed during the past year and which might be eligible for an Award for Scientific Achievement. These nominations, plus any which may be brought to the attention of the Board by its own members, will then be considered and a recommendation made to the Academy Awards Committee covering the Award. The Board may recommend the award of a statue, known as a Class I Award, a Certificate of Honorable Mention known as a Class II Award, Honorable Mention in the Report of the Board of Judges, known as a Class III Award, or may recommend that no award be given.

Final decision as to the findings of the Board will be announced at the Academy Awards Banquet, February 27.

CINEX TESTING MACHINES

CINEX POLISHING MACHINES

**BARSAM-TOLLAR MECHANICAL WKS.**

7239 Santa Monica Blvd.

Phone GRanite 9707

Hollywood, California

## The Cinematographer's Book of Tables

This book has become famous the world around in a few months. If you are a cameraman, professional or amateur you'll need it.

### ILLUMINATION

#### INCANDESCENT LIGHT

#### RELATIVE SPECTRAL ENERGY DISTRIBUTION OF VARIOUS TYPES OF MAZDA LAMPS

Wave Length of Light in Microns		RELATIVE LIGHT INTENSITY*			
		100 Watt A-23 Bulb Inside Frost Life 750 Hours 15.2 Lumens Per Watt	1,000 Watt PS-52 Bulb 115 Volts Life 1,000 Hours 20.7 Lumens Per Watt	5 K. W. C-64 Bulb 115 Volts Life 100 Hours 29.0 Lumens Per Watt	2,000 Watt Movie Flood PS-52 Bulb Life 15 Hours 33.5 Lumens Per Watt
Violet	400	11.8	16.9	25.6	31.4
	420	20.8	26.2	34.1	39.4
	440	30.5	36.0	43.8	48.0
Blue	460	39.9	46.6	53.8	57.1
	480	50.5	57.0	64.1	66.8
B. G.	500	62.8	68.2	74.7	76.8
	520	75.8	79.4	84.1	85.3
Green	540	89.4	90.9	93.4	94.0
	556	100.0	100.0	100.0	100.0
Y. G.	580	118.1	113.8	109.8	108.4
	600	133.5	125.3	117.1	114.2
Yel.	620	148.6	137.0	123.8	119.5
	640	163.5	148.4	130.0	124.0
R. O.	660	177.5	159.0	135.4	127.8
	680	191.8	168.6	140.2	131.1
Red	700	205.0	177.2	144.7	133.7

\*All readings adjusted to same light output at point of maximum visibility to the eye.

Data by General Electric Co.

It costs only \$1.00 to own a copy of Fred Westerberg's **CINEMATOGRAPHER'S BOOK OF TABLES.**

### GARDNER SPORT ROADSTER

1927—has 8 cylinder Lycoming motor. Body is a cream color with dandy rumble seat. There are seven wire wheels and tires (3 mounts) good rubber. Car is in good condition. Private owner. Price \$60.

1830 NORTH GRACE AVE.

Apt. 8

Phone Hillside 5790

**MAX FACTOR'S**

*Satin Smooth* **MAKE-UP**



Easy to Apply - - - - - Easy to Remove

Stays on All Day - - - Photographically Correct

**MAX FACTOR'S MAKE-UP STUDIO • HOLLYWOOD**

Please mention The International Photographer when corresponding with advertisers.



# GOLDEN GATE BRIDGE PANORAMA

(By the Bridging of the Golden Gate Association)



AERIAL VIEW AT 3000 FEET ELEVATION—SHOWING METROPOLITAN AREA

Breath-taking in its majestic beauty, the greatest single span conceived in the mind of man gracefully soars over the mile wide portal of the Golden Gate. It will open a broad highway for delightful, educational travel and profitable commerce; promote the industrial growth of a great area; cement business relations and promote understanding and good will between San Francisco and the coastal counties of Northern California. This view, looking from the Marin shore toward San Francisco, shows the Golden Gate Bridge as it will look when completed.

## The History of Golden Gate Bridge



HE bridging of the Golden Gate has long been the dream of both layman and engineer. During the past sixty years many schemes have been brought forward. Each enjoyed a brief publicity and was then forgotten.

The first official step toward the present project was taken in August of 1919 when the San Francisco Board of Supervisors adopted a resolution to initiate legislative action toward the forming of a Bridge District.

Joseph B. Strauss, now Chief Engineer of the District, upon invitation of M. M. O'Shaughnessy, City Engineer of San Francisco, undertook the study of a span that would meet all requirements and still be within rea-

son from the standpoint of finances. His findings were such that, coupled with the enthusiasm shown by the San Francisco group, the interested representatives of the northern counties organized the "Bridging of the Golden Gate Association." Working harmoniously the various bodies succeeded in creating a Bridge District. The bill was passed by the California Legislature and became a law in 1923.

From 1923 to 1933 the project met with innumerable legal delays. Every court action resulted in a victory for the District and in January of 1933 actual construction was started.

The final design was for a single deck suspension



bridge with a clear span of 4200 feet. While the span is 700 feet longer than any ever built, it is entirely feasible from an engineering standpoint. With the two back spans the bridge proper is 6450 feet long.

#### *Characteristics of the Great Bridge Comparative Figures*

It has the longest single clear span in the world, 4200 feet long, four-fifths of a mile, nearly three times the length of the Brooklyn Bridge in New York, and 700 feet longer than the greatest span ever built, the famous George Washington Memorial Bridge at New York.

The two side spans are each 1125 feet in length. Thus the bridge proper has a total length of 6450 feet, or one and one-fifth miles.

The steel towers are 121 feet wide at the bottom and 746 feet high above mean lower low water, the highest and largest bridge towers in the world. (Measured from the rock base of the San Francisco pier the total height is 846 feet.)

The minimum vertical clearance at center is 220 feet above mean higher high water, 100 feet greater than the clearance of the Brooklyn Bridge.

The total bridge width is 90 feet, center to center of cables, divided into a 60-foot roadway, with 6 lanes of vehicular traffic and two ten and one-half foot sidewalks.

The grand total length of the project, including the two approach roads, or from Waldo Point in Marin County to the Marina Gate of the Presidio in San Francisco, all embraced within the project, is 7 miles.

The two main cables are thirty-six and one-half inches in diameter each and 7660 feet long between anchorages.

The cable sag at center is 470 feet.

#### *Principal Forces and Dimensions*

The total possible live load supported by the two main cables is 25,400,000 pounds, corresponding to the bridge roadway packed, curb to curb, with vehicles and both sidewalks fully loaded, for the full length of the span.

The load supporting capacity of the two cables is 430,000,000 pounds, 2.6 times the maximum load.

The pull on each cable at the anchorages is 63,000,000 pounds and the counteracting resistance capacity of the anchorage blocks is 126,000,000 pounds.

The vertical load on each of the two main piers at the base, including the concrete pier shafts, is 400,000,000 pounds, yet the load on each square foot of the supporting rock does not exceed the established standard units.

The horizontal wind force at each tower top is 1,900,000 pounds, corresponding to a velocity of 90 miles per hour. The bridge is safe at velocities far above such extremes.

Each tower comprises two steel posts, built up of a series of rectangular cells in groups, the number of cells decreasing from 97 at the bottom to 19 at the top.

There are 723,000 square feet of concrete roadway and sidewalk paving in the bridge proper and another 273,000 square feet in the Presidio steel viaduct.

There are three and one-fifth miles of hand railing on the main and approach spans and one and five-eighths miles of additional railing on the approach roads.

The steel arch over old Fort Point, clearing it by 95 feet in height, has 4 arch ribs, with a span of 319 feet and a height of 200 feet.

Adjoining the arch on the San Francisco side and the bridge end of the other, are 1650 feet of steel viaducts on a curve, with a maximum height of 190 feet and deck widths of 84 and 68 feet respectively, which connect the bridge proper with the toll area and the approach roads.

There are two viaducts in the Presidio approach, one of steel 95 feet high and 1520 feet long and the other of concrete 3277 feet long.



Method of making motion pictures on Golden Gate Bridge. Shot on elevator, top of Marin Tower, 615 feet in the air. Frank Vail at camera. Left to right, Clay Bernard, Warner McLaws, W. E. Bamberger. Photo courtesy Standard Oil Company of California.

#### *Quantities*

This bridge has the greatest steel tonnage of any single span bridge but one in the world—over 100,000 tons—sufficient to load a freight train 20 miles long.

Each cable weighs 11,000 tons and contains 25,752 separate wires, two-tenths of an inch in diameter. The total wire length is 80,000 miles, long enough to girdle the globe more than three times.

The steel in its two towers alone is more than the steel in the entire Quebec Bridge—one of the world's greatest bridges, and in addition, there are over 9,000 tons of steel in the approach spans and steel viaduct of the Presidio approach road.

The San Francisco pier is one of the largest ever built, 90x185 feet, with a base carried down deep into the rock of the gate bed, and with a total height of 144 feet above this base.

Each cable anchorage has twin three-tier anchor blocks. Each twin of these anchor blocks weigh 64,000 tons.

The total concrete in the piers, fender and anchorages is over 260,000 cubic yards, enough to build a solid shaft of concrete 25 feet square and 2 miles high. Large additional cubic yardage is contained in the approach span footings, and in the Presidio viaduct.

There are over 261,000 cubic yards of excavation required for the piers and anchorages and for the daylighting of the Marin side span, and 250,000 cubic yards more in the remaining construction.

The toll terminal has provision for 16 gateways and 12 toll booths. It contains the administration buildings, fire and police equipment and maintenance depots.

The main approach roads are separated from the Presidio and Fort Baker network of roads, respectively, fenced in and lighted throughout. Grade separations are

provided at all points where traffic enters or crosses these roads. The roads are highly scenic and have easy grades and curves, notwithstanding the difficult character of the terrain.

The total traffic capacity of the bridge is over 283,000 machines every 24 hours, but the earning capacity for the first year of operation is based on only 5870 machines every 24 hours—less than one-fortieth the capacity provided.

The construction period is 4 years and the man hours of work will be 9,700,000 in the mills and shops; 2,000,000 in the mines and quarries; 6,600,000 in field work; 5,600,000 in transportation of materials; 300,000 in cement mills and 800,000 miscellaneous.

#### *Contribution to the Art of Bridge Design*

The bridge is unique in that its architectural treatment was assigned a position of primary importance—nor was beauty sacrificed to arbitrary design standards and rigid economy.

The structural conception as a whole is adjusted to its scenic environment and is carried out in full symmetry longitudinally and transversely.

The bridge is perhaps the first in which the importance of the new motif of stepped-off towers has been recognized and applied.

The bridge is also the first in which the network of transverse bracing between the tower posts is eliminated and the towers portal-braced throughout, making the tower effect that of a majestic doorway.

The San Francisco pier is the first bridge pier to be built in the open sea under new methods, specially devised, chief among which is a unique steel and concrete cofferdam 115 feet in height, built in place, section by section, 27½ feet thick at bottom, with its top 15 feet above water, remaining in place as a permanent fender to enclose the pier and protect it from possible impact of passing ships.

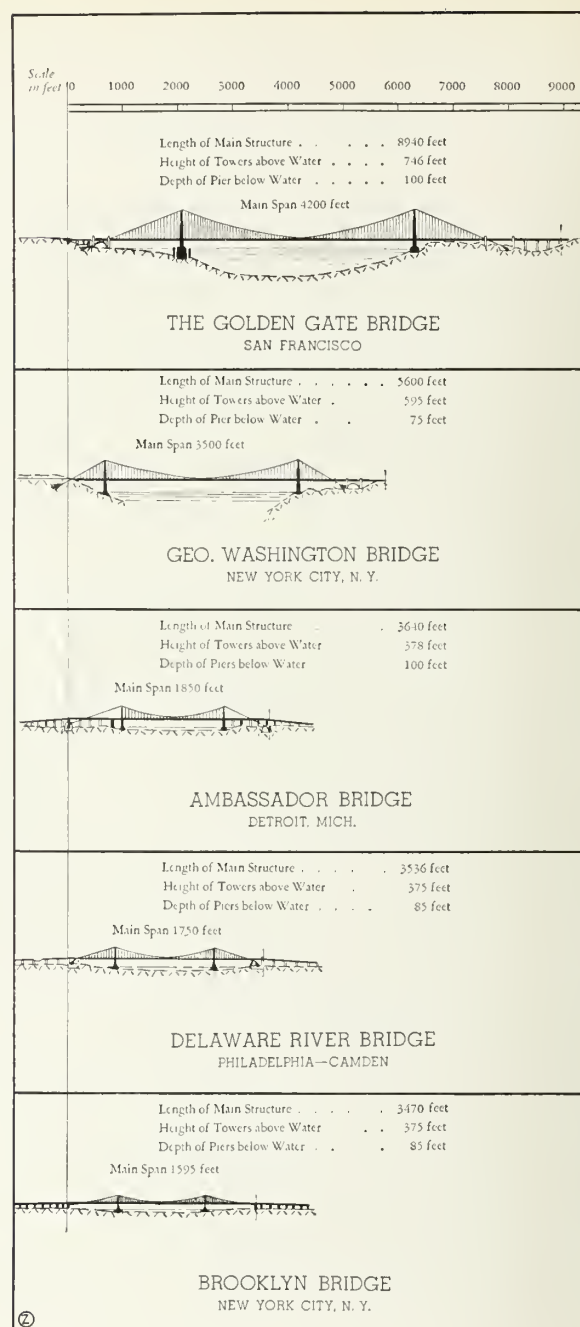
The piers proper are huge concrete monoliths, carried out architecturally to match the accentuated vertical lines of the tower posts and the structure as a whole.

The anchorages, with their towering concrete fascia walls, and their concrete pylons, 250 feet in height are as impressive and striking architecturally as the main towers.

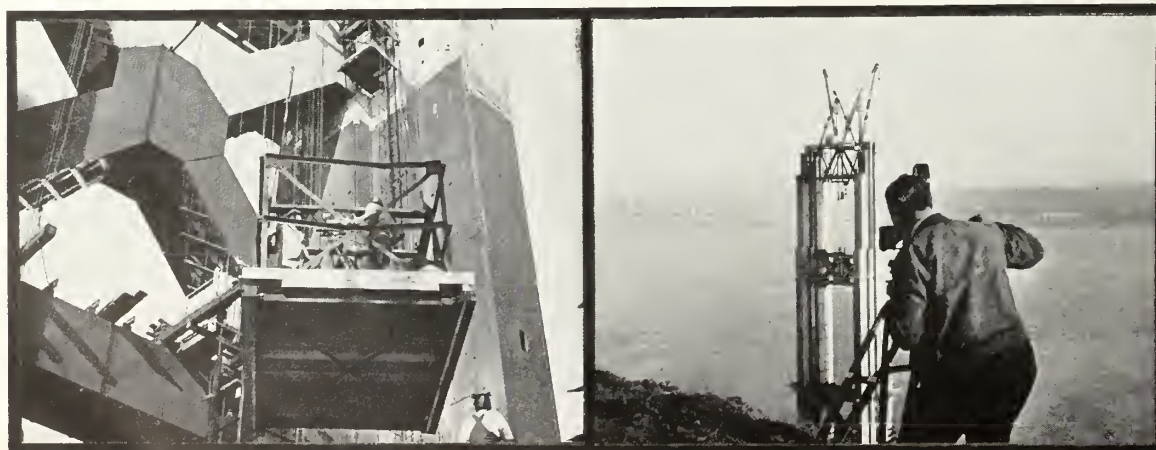
The bridge incorporates modern lighting effects as a major element of design. The cables are to be outlined in lights their entire length and the towers flood-lighted, making the electrical display at night a brilliant and impressive spectacle.

(Left) The Newsreel men make an attack on the new Golden Gate Bridge.

(Right) Frank Vail getting a wide angle shot more than 500 feet up.



#### THE GOLDEN GATE BRIDGE LONGEST-SPAN BRIDGE IN THE WORLD





The bridge towers will be surmounted by aerial beacons.

The bridge will have a regular United States lighthouse station—the first of its kind in the world.

It will have a complete independent telephone, fire and police telegraphy system, and every modern device for

efficient operation, including a travelling platform below the deck for inspection, painting and maintenance, motor-driven, and extending the full width of the bridge, insuring maximum vigilance in the care of the structure.

*From the Standpoint of the Exceptional*

The Golden Gate Bridge sets a precedent in being the only bridge ever authorized to be built across the extreme outer mouth of a major ocean harbor.

It is unique in that it is built under a voluntary pledge of the District's Directors not to award contracts if the total of all contracts as fixed by the engineering staff exceeded the bond issue amount of \$35,000,000.

The estimated total cost, including interest and all other charges, will be well below the estimate named.

The construction work is expected to be entirely finished and the Golden Gate Bridge opened for traffic in May, 1937.

*The Golden Gate Bridge Comparisons*

1. All of the cement used in the structure is delivered in bulk in barges, from which it is pumped into storage tanks by special cement pumps operating somewhat on the principle of a vacuum cleaner. This total quantity of cement if delivered in barrels in the old-fashioned way, and these barrels placed end to end, they would make a single line reaching from New York to Wilmington, Delaware.

2. The necessary excavations during the progress of the work will be equivalent in volume to the material removed in digging a hole in the earth 10 ft. square and 26 miles deep.

3. The concrete required for the project would be equivalent to the displacement of 21 first line battleships of 33,000 tons each.

4. The total length of the wire contained in the two main cables is sufficient to construct two wire fences 6 feet high, spacing the wires 6 inches apart horizontally and vertically, paralleling the Coast and Redwood Highways from Mexico to Canada, a distance of 1644 miles or 3288 miles of fencing.

5. The tops of the towers are at the same height above the water as the roof of a 65-story building above the sidewalk.

6. Loaded to capacity with as many vehicles and pedestrians as could be placed upon it, and with a wind blowing in excess of 90 miles per hour, the bridge has a 2.6 factor of safety.

7. If a man walked 4 miles per hour for 8 hours each day it would take him 6 years and 10 months to walk from end to end of the wire used in the two cables.

8. The steel inspection ladders running from top to bottom of each tower, with one in each cell unit, represent a total length of 23 miles.

9. The two main cables if put end to end would extend the full length of Market Street in San Francisco (3 miles).

10. It takes 450 freight cars to deliver steel for one tower.



The Marin Tower of the Golden Gate Bridge—Tower Is Practically Completed.

## STUDY IN MOLECULAR ATTRACTION



The one hundred and five pounds of Miss Alberta Kaesser is suspended by nothing more than the molecular attraction between the surfaces of two pieces of highly polished optical glass, so accurately flat that they will resist a separating force of 95 to 100 pounds per square inch. The surfaces are accurate to within a millionth of an inch. These test glasses, made by Bausch & Lomb, were part of an exhibit for the annual meeting of The Optical Society of America at the Bureau of Standards, Washington, D. C., October 18-20.

## APPLICABILITY OF STEREOSCOPY TO MOTION PICTURES

(Continued from Page 2)

ments of the subject will demonstrate the problem confronting the experimenter in this branch of motion pictures.

Some may seek to discount our pessimism by reciting the fact that they have witnessed demonstrations of stereoscopic motion pictures. This is true, and in reviewing the various methods by which those pictures were made we consider the obvious mechanical and mathematical propositions under which experimentors have agreed for years. We refer to the necessity of the picture corresponding to the vision of the right eye being neutralized, while the left functions, by means of shutters or spectacles, each eye being furnished with mediums of complementary colors; both expedients depending upon the persistence of vision in associating the two images in the brain, and in lieu of the prisms or reflectors of long established methods.


These pictures have been interesting but costly experiments and of no commercial value, for several reasons. First, because they depended upon the co-operation of the audience, and the public is a cruel, impatient patron or partner when it is expected to share the difficulties of an enterprise. Secondly, they represent a very poor patent protection. Most of the patents granted on devices for making stereoscopic motion pictures show very little originality and nearly all embody the first principles of the early days, even of the times when drawings

were viewed in simple instruments like Elliot's stereoscope. The only unique device shown is one based on the oscillation of the eye and produces only pseudo stereoscopy.

Many other experiments have been suggested by these pseudo effects, such as the oscillation of the eye in monocular vision or the rapid and even change of parallax, observed in pictures taken from an aeroplane circling over tall buildings or from a boat moving along a winding stream, or from da Vinci's effect of viewing a picture from the proper point of sight. These effects have been attempted, in motion pictures, by placing the camera on a platform moving in an arc, the radius extending somewhere back of the set, by which means the foreground objects are continually measured against those in the background. Other experiments provided queer lenses placed in front of the main objective or by reflecting the image into the camera, special screens that insist on one person in the audience sitting in the proper place, all of which are worthless propositions. Through ignorance of the subject, there have been misrepresentations of millions of dollars having been spent in perfecting a system of stereoscopic motion pictures, and it is due those concerned in that project to state that we do not believe there has been any claim of true stereoscopy in a wide range picture taken with a single lens or without the aid of optical devices for the observer. The name, "Natural Vision," has probably been erroneously used in designating a monolens picture covering an angle more nearly equal to the range of the human eye than that of the standard motion picture. Even this system comes within the realm of artistic judgment as to how much of a subject should be presented, to furnish excellent composition, for there is no pictorial value in scattering our vision over a tremendous area.


It is interesting to observe that the difficulty lies not in the taking of stereoscopic motion pictures but that the real problem is in projecting them, which brings us to a consideration of the much disputed points suggested in sections three and four, i. e., the psycho-physiological elements.

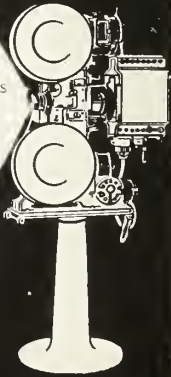
Outside of the body, and even as far as the two retinae, we have a satisfactory explanation of the phenomenon of stereoscopy, arrived at by deductive reasoning, aided by many branches of mechanics and mathematics; but when we leave the retinae we are to suppose a sort of psycho-physiological stereoscope set up in the brain, which at present is conveniently explained by assuming that the optic nerve transfers the retinal stimulus to the brain. We are confronted with the proposition of two flat images, similar to those on the ground-glass of an ordinary camera, falling upon the retinae and associated in some manner in the optic thalami, then transmitted through the optic radiation to the visual centers and other parts directly connected with the perception of this



**EVERYTHING  
PHOTOGRAPHIC**  
for Professional and Amateur

New and used. Bought, sold  
rented and repaired. Designers  
and manufacturers of the  
H.C.E. Combination Lens  
Shade and Filter Holder  
for any size lens.  
Send for foreign catalogue  
**Hollywood Camera  
Exchange**  
1600 Cahuenga Blvd.  
Hollywood  
Tel.: HO-3651  
Cable:  
**HOCAMEX**







effect, particularly the memory chambers. (It has been shown that people not endowed with a well developed perception of stereoscopy have faulty memory.)

Up to the present time, the functions of the rods and cones and the Muller fibres of the eye and the optic tract, and the neurons connecting the retina to the brain, have been imperfectly understood. Delmar A. Whitson advances a theory that insinuates the subject into the ever-broadening realm of radio, by observing, in the construction and association of the rods and cones, a system that suggests an electronic relation, to form a sort of receiving set. According to physical laws, any instrument capable of receiving a wave also has the power of emission. Curiously enough, this theory appears to be substantiated by a series of experiments conducted by Dr. Charles Russ, by which he caused a delicately balanced electrical instrument to respond, actively, to the direct glance of the eye. Whitson's theory provides the assumption that the effect of vision is the result of a heterodyne action produced by the waves of the eye challenging those directed towards the eye. It has been established that in both sound and radio waves the heterodyne sets up a long beat note and that this beat wave may be responsible for the effect of vision. This does not seem to conflict with the accepted theory of light for we know that the eye is not constructed to receive the full rays of the spectrum. This theory might suggest that stereoscopy is the result of a very complex system of radiation from near and remote planes, limited in monocular vision and multiplied in binocular vision, and, in fact, the more complex the radiation, the more pronounced the effect of stereoscopy. It might also agree with the observation that perception of stereoscopy varies in individuals, due to the individual pathological condition and arrangement of the rods and cones. And, further, the idea of the eye emitting a wave agrees with the simplest explanation of the operation of the brain, "which is, in its highest activity, the organ of consciousness or mind, and its general function is that of furnishing the most complex and extensive outgoing stimulation of muscles and other active tissues as a response, more or less immediate, to the most complex and extensive incoming sensory stimulation."

The psycho-physiological consideration has so engrossed some stereo enthusiasts that it has been hinted that some progress has been made in attacking the problem from this angle. But, unfortunately, we have been furnished no details by which we may judge the merits of such a conception.

However, the more conservative students reflect the attitude of the aforementioned Dr. Russ, "supremely skeptical of any matters that do not lie within the scope of material proof, to be shown by touch, sight and measurement."

This present consideration revolves around the so-called pseudo effect, which has puzzled so many observers, and we revert to it as a concluding idea. As to the da Vinci effect, of viewing a picture with one eye, we

believe that this is merely a matter of psychosis, in finding a perfect adjustment of the perspective "point of sight;" but we contend that there is no such effect as pseudo stereoscopy as regards vision, and that even in monocular vision, the effect is complete but is limited to the degree of parallax to which the single eye is capable of producing; and that the effect is enhanced or multiplied, in the use of both eyes by obtusing the triangulation. In viewing, with one eye, a group of small objects at very close range, we experience a perfect sense of third dimensional displacement, and that the effect is reduced as we remove the group from the eye. Likewise, in viewing objects at a great distance with both eyes, the field flattens in proportion to the distance of the objects from the eye. In single eye vision, at very close range, the principle that every point of a lens is an individual lens, with the iris providing a minute inter-pupillary distance, a very complex system of triangulation is set up. However, this is only noticeable at an extremely short focus, and it is probably for this reason that it has been overlooked as an important factor in the study of stereoscopy.

In the present subject, the field of physics is so greatly influenced by the physiological consideration that it is almost impossible to deduce it to principles or rules, and that an attempt to do so merely becomes a further elaboration. As briefly as possible, therefore, we define stereoscopy as photo-triangulation registered in the brain through the medium of the optic nerves. The spread of the image on the retina forming the base of the triangle and the diameter of the iris forming the numerous points of parallax and the degree of the effect varying with the focal length and the distance of the objects.

The rods and cones of the eyes are supposed to function dextrally and sinistrally and that the simultaneous registration of their activity produces the highest degree of stereoscopy, but it is also believed that the optic nerve system is so complicated and sympathetic that even in a one-eye exposure a certain number of the rods and cones effect a cross nerve stimulus to the opposite set of centres, especially near the periphery of the retina, which permits of a considerable degree of photo-triangulation in the single eye. This cross nerve effect is feeble and limited, in individuals, to the degree of this peripheral stimulus. It must be understood that this effect is observed at very close range and with the aid of an auxiliary lens to help adjust the focus, for although the eye contains an adjustable lens it has its limits, even in extremely myopic vision.

In conclusion, we can only center our hopes in the fact that nature generously provides many means to an end, that necessity frequently solves her problems. Public demand prodding a bright research mind, with unlimited laboratory facilities and generously endowed may solve the problem.

We assume that this problem excludes the use of optical devices by the audience.

---

**On behalf of many cameramen who have reason to be grateful to them for courtesies extended, THE INTERNATIONAL PHOTOGRAPHER wishes the Motion Picture Relief Fund Executives the Happiest and Most Prosperous of New Years—Francis X. Baur, Miss Vilma Basher, Miss Florence Homan, and Mrs. Adele Macomber.**

## RELATIONSHIP BETWEEN CONTINUITY AND CUTTING

(Continued from Page 11)

force in the field of rhythm. Every day fine examples of rhythmic continuity blended by music and the dance are brought to us in the local theaters. This source of rhythm is one of the three at your disposal. Two other types of rhythm also help us as a unifying force—rhythm in the material, and rhythm through the metrical relationship of the film strips.

Many directors use the rhythm of their photographic material—the plunge of the drive rod on a locomotive, the eternal beat of the sea, the surge and fall of a canoe under the impulse of a paddle, the clank of the hammer as the chain gang foreman sets the pace for the gang on the rock pile—to unify the various angles shot of the subject. As long as the beat is there, either on the sound track or in the movement of the material one may be relatively free in his selection of angles and in their conjoining.

Many directors develop a metrical relationship between the film strips in order to unify their various shots. These relationships form an abstract type of filmic rhythm that is applicable to some scenes and situations. It is an entirely synthetic rhythm but is often a strong and powerful method of cinematic presentation.

In using any one of these three sources of rhythm it is often only a slight step forward to combine two and possibly all of the three in doing a scene that calls for the rhythmic type of continuity. Mickey Mouse cartoons, which are the rhythmical pictures of the day, employ all three sources in every film.

### II. IMPRESSIONISTIC AND IDEOLOGICAL

In which the whole is represented by its symbolical parts. In which the impression of a murder scene, for instance, is carried out in shadow, in a close up of a hand holding a gun—of unloosening fingers sliding from the arm of a chair. In this type of continuity the shots are unified by the idea behind the montage of shots—MURDER. We may express joy, sorrow, etc., in the same manner, unifying the components by the major meaning behind a continuity.

### III. PSYCHOLOGICAL

In which the associational forces of the mind serve to tie up the shots. In using this type of blending force we have at hand these resources:

#### A. Contrast and Comparison

- 1 of idea
- 2 of visual pattern
- 3 of space
- 4 of light and shade

#### B. Symbolic Intercuts

- C. Eisenstein's principle of Dialectic, or Epic Montage. In which the two film strips to be conjoined always represent opposing forces out of the superimposition of which there is formed a new concept, or overtone idea.

With these various blending forces in mind we can go back and consider the problems of plotting and developing the Action Continuity.

By the time the story is finished you will doubtless have blocked out in your mind much of the important plot and character material which should run in the closer shots; you may even have numerous angles and movements in mind—even partial continuities here and there. These thoughts and a few observations about your story which will be discussed in the following paragraph must serve to rough in your Action Continuity.

For plotting or keying, action superficially, a chart (or floor plan of each scene or portion of a scene) upon which is worked out the movements of the material and the placure of the camera in relation to each shot is very handy. In order to develop this chart the points of the story for which you have already conceived some cinematic treatment may be set down for a beginning. Beyond this there are three points which, when thought out, completely skeletonize the Action Continuity:

- I. First of all there are inevitable moves which are demanded by the story or the properties to be handled: an entrance or exit, answering a phone, pouring tea, going to the window—all are moves dictated by the plot.
- II. Next, and very important, are the moves motivated by the emotional impulse within an actor.
- III. Third comes the embellishment moves. These are created by the director or the continuity man to keep the action interesting and life-like. A scene can be played on a divan or at a table and be true to life; but generally, because a picture is so compact, 90 percent of the scenes in a script would call for the characters sitting or standing still and talking. Within one picture many scenes of this type would bore the audience and make the picture peepless. So we must invent clever movements which conceal their purpose, and through them keep the scene alive.

In doing this you make possible interesting, even artistic, compositions and movements within the frame; you give yourself much more room for effective dolly shots and panning, and you can shoot more and better angles. This is not improper because the moving picture is now and forever more better than 50 percent an appeal to the eye.

Coincidental with the Action Continuity will appear a Camera Continuity. The angle and position of each set up will be indicated and numbered on the chart. At the side, after each set up number you may explain the lens to be used, the height of the set up and any information which strikes you as special to the particular shot.

The steps gone through between the story writing and the shooting are what might be called the Architecture



## NEW TYPE FLOOD LIGHTS

For Use With Fotofloods  
Extremely Powerful  
Flood or Spot

Come in and see them – or write for details.

### CAMERA SUPPLY CO.

Cable Address  
"CAMERAS"

RUDDY GERAUS MANAGER

1515 Cahuenga Blvd.  
Hollywood, Calif.

GLadstone  
2404

Nite Phone GLadstone 6583



of the Motion Picture. They were created to cause a smooth interflow or inter-relation between the parts and bear the same relation to the finished products as do the plans for a great building. *Through preconception, both the part and the whole have been tested logically for beauty and balance, structural strength and efficiency.*

This exactly is the relationship between cutting and continuity. The one is the plan, the other the mechanical means to an end.

In so far as this has been more or less general and intended only as a survey of the field of continuity and cutting, the writer believes it would be interesting to discuss from time to time problems which annoy the reader in his amateur production. If the reader, therefore, will address me, care of THE INTERNATIONAL PHOTOGRAPHER, I will answer any questions or criticism to the best of my ability.

## SUPPORT THE MOTION PICTURE RELIEF FUND

### *The Last Word*

In Sound Recording

#### THE NEW PRINCIPLE MINOR QUARTZ OPTICAL UNIT

becomes an integral part of your sound recorder—this unit is cemented into a steel block—it focuses a beam of light of great intensity and actinic value a distance away and on the film, which PROVIDES CLEARANCE and PREVENTS SCRATCHING of the sound track. The width of the beam of light measures from .0005" to .0008" as it strikes the moving film.

Send for details and specimen of sound track.

**C. C. MINOR**

1724 Whitley Avenue

Hollywood

# Write for this New BULLETIN

*Featuring  
Studio Lighting  
Units*

New Lights  
New Ideas  
New Methods

Cost and Time  
Saving Information

Sixteen pages of the very latest information on studio lighting equipment . . . showing every conceivable type for photographic purposes, together with optional wiring accessories. You will be amazed at the advanced designs and remarkable improvements that have been perfected. There is no charge for the booklet, simply write, and . . .

Ask for a copy of our Bulletin No. 106

## KIEGL BROS

UNIVERSAL ELECTRIC STAGE LIGHTING CO., INC.  
321 WEST 50th STREET  
NEW YORK, N.Y.

# The Mechanical Needs of the Industry

Manufacturing Motion Picture Equipment

Optical Printers

Special Projection Equipment

Camera Booms

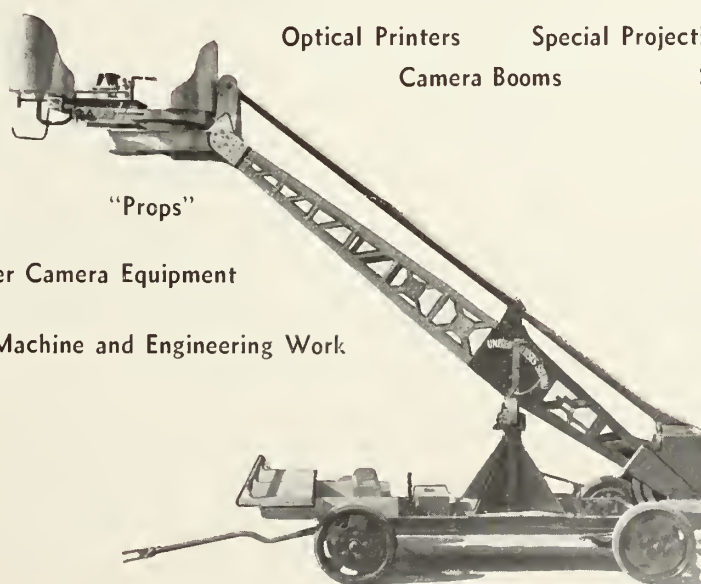
Synchronizing Devices

Miniatures

"Props"

Under Water Camera Equipment

General Machine and Engineering Work



## H. W. HOUSTON CO.

1041 NO. SYCAMORE AVE., HOLLYWOOD, CALIF.

HEmpstead 6732

# INTERNATIONAL CLASSIFIED ADVERTISING

Brings results—Rates 45 cents per line—minimum charge one dollar per insertion. For Rent—For Sale—Wanted—For Exchange, etc.

## FOR SALE AND RENT—CAMERAS

**FOR SALE OR RENT**—Mitchell and Bell & Howell silenced cameras, follow focus. Pan lenses, free head, corrected new aperture. Akeley, De Brie, Pathe, Universal, Prevost, Willart, De Vry, Eyemo, Sept, Leica. Motors, printers lighting equipment. Also every variety of 16 mm. and still cameras and projectors. B & H Cameras with old type shuttles silenced \$150. Everything photographic bought, sold, rented and repaired. Send for our bargain catalogue. Hollywood Camera Exchange, 1600 Cahuenga Blvd. Phone HO. 3651. Cable, Hocamex.

**BELL & HOWELL** Professional Motion Picture Camera complete with 35—40—50—75 mm. lenses and Mitchell tripod legs. Also Akeley Camera complete with 2 in., 6 in., 17 in. lenses. Mervyn Freeman, 1960 South Vermont Ave., Los Angeles, Calif. Phone: REpublic 3171.

## FOR SALE—CAMERAS AND EQUIPMENT

**REAL BARGAINS** in 16 and 35 mm. movie equipment and still cameras. Newest types cameras and projectors in all popular makes. Save money on film, lights, lenses and all essential accessories. Our 36 years of experience stands back of every sale. Before you buy, send for our new bargain booklet. Burke & James, Inc., 223 W. Madison St., Chicago.

**BELL & HOWELL—MITCHELL—EYEMO** Cameras, lenses, magazines, tripods, moviolas, splicers, rewinds. All kinds of sound and laboratory equipment. Inquiries invited. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood, Calif. Cable address "Tomwhite."

**LIKE NEW**, Mitchell Camera, silenced Academy aperture, Pan Tachar lenses, free head tripod, 1000 ft. magazines, complete \$2000.00. Hollywood Camera Exchange, 1600 N. Cahuenga Blvd., Hollywood, California.

**LIKE NEW**, Educational Camera Blimp, geared free head, follow focus device and three-wheel dolly. Cost \$1250.00. Our special \$500.00. Hollywood Camera Exchange, 1600 N. Cahuenga Blvd., Hollywood, Calif.

**AKELEY CAMERA**, 32 mm., 40 mm., 50 mm., 75 mm., 100 mm., 6", 12 1/2" lenses, 12 magazines, motor, adapter, Tripod and cases \$500.00. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

**LIKE NEW SOUND MOVIOLA**, Model UC, Price \$450; also new H. C. E. Freehead Tripod and legs for Bell & Howell, Eyemo or DeVry cameras—\$75 complete. Hollywood Camera Exchange, 1600 North Cahuenga Blvd., Hollywood.

**LIKE NEW ARTREEVES** portable double sound recording outfit, with BELL & HOWELL silenced camera, complete in every detail. A real bargain, price \$3500.00. Price without camera, \$2500.00. Hollywood Camera Exchange, 1600 N. Cahuenga Blvd., Cable Address, HOCAMEX.

**MITCHELL CAMERA**, very quiet steel gears, 3 Pan Tachar lenses, Free head, complete studio equipment, excellent condition, \$1450. CAMERA SUPPLY CO., LTD., 1515 North Cahuenga Blvd., Hollywood.

**BELL & HOWELL CAMERA HEAD**, 170 degrees, three lenses, B & H tripod legs and head, beautiful condition, \$700. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

**ART REEVES**, latest model 1935, double system sound recording installation, factory guaranteed, Automatic Speed Control Motor, Twin Fidelity Optical Unit, Bomb microphone, the only genuine, modern, workable ArtReeves equipment for sale in Hollywood outside factory. Price, complete in every detail, \$2,400. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

**NEW AND USED HOME MOVIE CAMERAS**—DeVry Motion Picture Cameras—sound on film portable projectors with operators for rent. Photographic supplies—fine grain finishing—courteous service. Educational Project-O Film Co., 1611 North Cahuenga, Hollywood.

**FOR SALE**—Mitchell tripod friction head—good as new. \$150. Box Z, International Photographer.

## FOR RENT—CAMERAS

**TWO THOROUGHLY** silenced Mitchell cameras. Follow focus device, Pan Astro lenses, Freehead—1000 ft. magazines. J. R. Lockwood, 523 No. Orange St., Glendale. Douglas 3361-W.

## THE INTERNATIONAL PROJECTIONIST

**THE INTERNATIONAL PROJECTIONIST**, a monthly magazine published in the interests of the projectionist. Interesting, instructive. Yearly subscription U. S. and possessions, \$2; foreign countries, \$2.50. James J. Finn Publishing Corp., 1 West 47th St., New York.

## WANTED TO BUY

**MOTION PICTURE—STILL PICTURE**—laboratory and cutting room equipment—lenses—finders—tripods. Highest prices paid. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood, Calif.

**WANTED**—Mitchell camera silenced. State number and full particulars. Box X, International Photographer.

**MITCHELL OR BELL & HOWELL CAMERA**. State full particulars and lowest cash price. Address Morgan, International Photographer.

## CAMERA REPAIRING

**BELL & HOWELL** cameras with old type shuttles silenced, \$150. Hollywood Motion Picture Equipment Co., 645 No. Martel Ave., Hollywood.

# Now! Ampro

## REGULAR \$150.00



### Best 16MM Value

Bass . . . value leader . . . offers Precision Made Ampro . . . New guaranteed—at a saving of \$50.50—Powerful—Brilliant—Plastic projection—Long-life—Smoothness—Quietness assured.

400 watt Biplane Mazda light is equal to 500 watt. Kodacolor may be used. Instrument complete with cord and plug—instructions—carrying case. Fully guaranteed for one year. Regular \$150.00; Bass price \$99.50.

Full details and Bass Bargainingram No. 212 is free on request.

DEALERS: WRITE FOR DETAILS

## BASS CAMERA CO.

179 W. Madison St. Chicago

**GUARANTEE**

"I personally guarantee satisfaction or your money back. I guarantee the 400 watt Biplane Filament Mazda equal to 500 watt in illumination."

*Charles Bass*  
President

## MOVING PICTURE MONTHLY

All About The  
CINEMA WORLD IN INDIA

Annual Subscription—Inland—Rs. 3-8-0  
Outside of India—7 Shillings or \$2.50

Send to  
Motion Picture Monthly, Khataav Bldg., Giegaum, Bombay, 4, India

**COMPLETE SET**, except two issues, INTERNATIONAL PHOTOGRAPHER last four years. What am I offered? Box GB, International Photographer.

**VERY POWERFUL FLOODLIGHTS** of new design. Will burn through a 1000 W. Rifle with Cable—\$5.00. With 12 foot collapsible Stand—\$20.00. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

**MITCHELL MOTOR**—1000 ft. Mitchell magazines. J. R. Lockwood, Glendale. Douglas 3361-W.

**FOR SALE**—75 mm. Cooke Lens. F.2 in Mitchell mount complete. 50 and 75 mm. Astro lenses, mounted and unmounted. J. R. Lockwood, 523 North Orange Street, Glendale. Douglas 3361-W.

**BUYERS READ** these classified advertisements as you are now doing. If you have something for sale or exchange—advertise it in these columns. **THE INTERNATIONAL PHOTOGRAPHER**, 1605 No. Cahuenga Ave., Hollywood.

**FOR RENT**—25 and 35 mm. lenses, motor adapters, Mitchell Standard tripod head, baby tripod, 400 ft. Mitchell magazines. J. R. Lockwood, 523 North Orange St., Glendale, Douglas 3361-W.

**FOR SALE**—Multicolor 35mm. double color printer in conjunction with 16mm. reduction and 35mm. duping and optical printing. Sound attachment if wanted. Barsam Tollar Mechanical Works, 7239 Santa Monica Blvd., Hollywood.

## POSITION WANTED

**DO YOU WANT A CAMERAMAN** who is an expert on studio production; or an expedition cameraman who knows every corner of the world; or a cameraman who thoroughly understands the making of industrial pictures; or an expert newsreel photographer; or an expert color cameraman? A limited number of cameramen, backed by years of experience, are available. Write stating your requirements and we shall be glad to assist you in choosing the kind of cameraman you want. **INTERNATIONAL PHOTOGRAPHER**, 1605 North Cahuenga Ave., Hollywood.

## MISCELLANEOUS

**COMPLETE COURSE IN FLYING**—If interested in aviation, see Roy Klaffki, 1605 North Cahuenga Ave., Hollywood.

**WANTED**—To know of the whereabouts of motion picture relics, documents, or equipment of a historical nature for Museum purposes. Write Earl Theisen, care of International Photographer, 1605 Cahuenga Ave., Hollywood.



**NOTED "GLACIER PRIEST" BACK FROM ALASKA**

Rev. Bernard Hubbard, S. J., the famous "Glacier Priest," has returned from another of his notable Alaskan expeditions, this time bringing back with him over 110,000 feet of 35 mm. silent film from which he has already assembled one complete eight-reel feature called "Conquering the Aghileen Pinnacles." By the first of the year he expects to have ready two more eight-reelers—"The New Valley of Ten Thousand Smokes" and "The Ice Inferno."

A professional Bell & Howell camera outfit was carried on the backs of his men right into the Alaskan volcanoes. The standard camera did the greater part of the expedition's motion picture work, although two Bell & Howell Eyemos were also used to great advantage. The film was all taken at sound speed, and although at first Father Hubbard will use the three eight-reel pictures, mentioned above, as illustrative material for his lecture work, he intends shortly to add sound to them in the form of a narrative spoken by himself, combined with appropriate music. Probably he will arrange for the release of these sound pictures in 16 mm. sound on film for showings before schools, clubs and similar audiences.

"Nick" Cavalieri, who filmed "Wild Cargo" and "Bring 'em Back Alive" for Frank Buck, accompanied Father Hubbard on this latest expedition and shot most of the footage. "Bev" Jones, who was with Pathe and Fox for eight years, directed the film work and is now editing the pictures.

Father Hubbard is probably one of the most popular of adventure lecturers. He has a lecture schedule that calls for practically daily appearances until June, 1935, when he expects to leave once more on another expedition. This time he will be gone for thirteen months. He states that this coming expedition will be the greatest of his career.

Father Hubbard is Professor of Geology at Santa Clara University, Santa Clara, California.

# 16 MM.

FRED WESTERBERG'S BOOK  
ENTITLED

## The Cinematographer's Book of Tables

Is not alone for the **PROFES-**  
**SIONAL** Cameraman, but for  
the **AMATEUR** as well. It is a  
safeguard against mistakes, is a  
time saver and makes for effi-  
ciency. The book costs only  
\$1.00 and may be had at any  
dealer's.

# 35 MM.

## ROY DAVIDGE FILM LABORATORIES

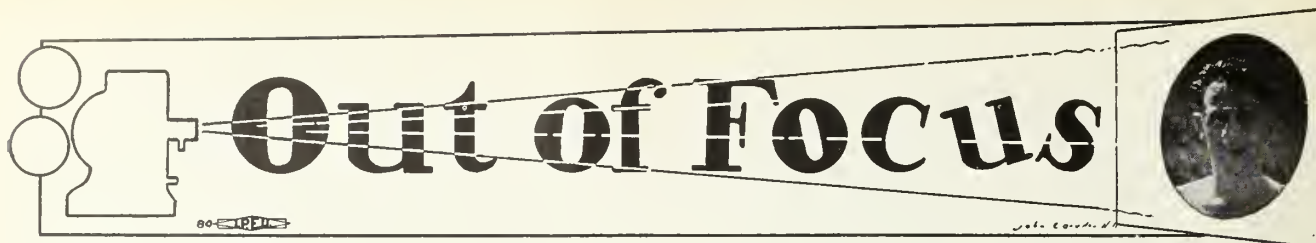
...

An Exclusive "Daily" Laboratory

...

Quality and Service

6701-6715 SANTA MONICA BOULEVARD  
GRanite 3108



By JOHN LEEZER

Pinch Hitting for Charles P. Boyle (Otto Phocus)

*What! I pinch hit for Otto Focus,  
Who writes all kinds of hokus pocus?  
Too serious-minded, says I to Si,  
But I can write of picture days gone by;  
The yesterdays of stars and cameramen,  
And maybe we can make them live again.*

\* \* \*

**W**ILFRED LUCAS, who directed "The Trey of Hearts," Universal's first serial, tells the folioscenes in the 'Trey of Hearts' serial from the top of a building being erected on Broadway. The steel work had been raised to the seventh floor and as there were no elevators or stairways we were compelled to resort to ropes and ladders in order to get our camera equipment to the top. Naturally, this entailed not a little labor and considerable time. Fortunately, we had no sound equipment to handle. However, we were finally ready to get the first scene. The heavy and the lead were to pull off a fight on a steel beam which was suspended out over Broadway. Steve Rounds was my cameraman and when he signed to me that he was ready I called 'Camera!' I had no more than called it, however, when Steve grabbed my sleeve and said: 'Shust a minute, Mr. Lucas, 'till I fix it my diafragma.' The 'diafragma' fixed I again called 'Camera!' Steve turned his crank two or three times and stopped. 'Now, what?' I inquired. 'Ach Gott, Mr. Lucas! In mine camera is noding!' 'Well, where is it?' I demanded. 'Down stairs in automobubbles.'"

\* \* \*

While the eminent English actor, Sir Herbert Beerbohm Tree, was engaged in the production of "Macbeth," his first motion picture by the way, on the Griffith lot, his inability to comprehend the limitations of a two-inch lens was amusing to other members of the cast, but not so to his cameraman. So wrapped up did Sir Herbert become in his characterization of the Shakespearean character that he would forget the patient explanations made by cameraman and director in less time than it required to make them. "But, deuce take it, I must walk from here to there while I deliver these lines, ye know," he would remonstrate. Unfortunately, the Akeley camera was still unknown. Sir Herbert was on his way to location on the same picture when motor trouble developed. The chauffeur did not locate the trouble immediately and

Mr. Tree impatiently inquired: "Isn't there any lard in the bloody motor?"

\* \* \*

"The Girl of the Timber Claims" was a Reliance picture starring Constance Talmadge and directed by Paul Powell. Exteriors in the big timber country near Santa Cruz. Little Nell's father had to die according to the script and the author said: "Let a tree fall on him." Of course it did appear that a tree fell on the old fellow. At any rate the funeral was held and the remains, in a rude pine box, were laid to rest 'neath the shadow of the pines he loved so well. Shortly after we had returned to Hollywood some timber "ruisers" ran on to the grave of little Nell's papa and, scenting a murder mystery, notified the sheriff's office. The sheriff, with the help of half a dozen deputies and two newspaper men, exhumed the remains aforementioned—and was his face red. The publicity department considered that yarn one of their best. I came across the lad who was responsible for that story one morning some years later. It was during the short interval when we were miniature golf-minded and he was standing outside the office of one of these golf courses on Vermont Avenue busily engaged in lettering a sign. Pointing out a number of holes in the window pane he explained that same was there because an over-zealous policeman had missed a burglar. Curious to know the purport of the sign I hung around until same was finished and tacked up. It read: NOTICE TO OUR PATRONS: WE HAVE ADDED A NUMBER OF HOLES TO THE COURSE BUT AT NO ADDED COST TO PLAYERS.

One of the most pleasant of my picture associations was with that spendid actor, Arthur Mackley. Before taking up directing he played the Sheriff opposite Broncho Billy Anderson in many Essanay films. I recall an interior scene in a Western picture which, being a night scene, Mr. Mackley thought would be more effective if shot through a window shade from the outside. In other words, the interior action of two people would appear in silhouette on the shade. The action ran about fifty feet and, much to my surprise, while working on another set the following morning, a negative developer from the laboratory on the lot rushed up to me with my silhouette draped about his neck, arms and hands. He informed me that the scene would have to be retaken because of some foreign matter which had evidently lodged in my matt box.

---

**The Motion Picture Relief Fund Has Helped Many Cameramen in Times of Stress. It Is the Duty of Every Cameraman to Reciprocate When Able To Do So.**

---



# 100% CARBON ARC



*Ice Cream Color Fantasy of "Kid Millions," Eddie Cantor's fifth annual screen musical comedy for Samuel Goldwyn. Eddie Cantor and Doris Davenport are on the free ice cream wagon, and Warner Hymer and Ethel Merman are in the small car behind.*

*Technicolor Photography by Ray Rennahan  
Chief Electrician, Walter Strohm*

● Many pictures are now being made with 100% carbon arc illumination.

The penetrating power of carbon arc illumination, the increased comfort it affords on the sound stage, its accurate color rendition and its unsurpassed photographic speed make the carbon arc a necessity for color production.

Its superiority for black and white photography is also gaining increasing recognition.



*Give this new light a trial ✓*

• LESS HEAT • MORE PHOTOGRAPHICALLY EFFECTIVE LIGHT

*New!*

*Silent, steady burning lamps—side arcs, scoops and spots—have proved their adaptability to the sound stage.*

**NATIONAL CARBON COMPANY, INC.**

Carbon Sales Division, Cleveland, Ohio

Unit of Union Carbide  and Corbon Corporation

Branch Sales Offices: New York ♦ Pittsburgh ♦ Chicago ♦ San Francisco





# PROSPERITY

for

## 1935

**E**VERYTHING points to an industrious and prosperous New Year. It is our sincere hope and wish that you will share liberally in that prosperity and that the Mitchell Camera will continue to play its important role in the production of successful pictures.

MITCHELL CAMERA CORPORATION

665 NORTH ROBERTSON BOULEVARD  
WEST HOLLYWOOD, CALIFORNIA

Cable Address "MITCAMCO"

Phone OXford 1051



# INTERNATIONAL PHOTOGRAPHER

HOLLYWOOD

FIFTEENTH YEAR

FEBRUARY, 1935

VOL. 7  
No. 1



—Still by Augustus Wolfman

## THE BIRTH MONTH OF FATHER ABRAHAM

What has Abraham Lincoln to do with cameramen? Only this—that his glory is part of the heritage of every American cameraman, and, it is thinkable that if the Great Emancipator were alive in these days of the camera, he would be undoubtedly the most photographed man in the world. Also, Abraham Lincoln said one time: "Capital is the fruit of labor and could not exist if labor had not first existed. Labor, therefore, deserves much the higher consideration." The cameraman is first of all a son of Labor—after that he is an artist. Abraham Lincoln was a friend of Labor. Local 659 bows to his majesty, glory and humanity.

5 CENTS  
A COPY

MOTION PICTURE ARTS AND CRAFTS



EASTWARD INTO THE NIGHT

• BY JOHN P. GATY



REG. U.S. PAT. OFF.

DUPONT SUPERIOR FILM - LENS  
APERTURE F2.3 - NO FILTER - 1/40  
SECOND-TIME AFTER SUNSET -  
ALTITUDE 8,000 FEET - WEST OF  
ARROWHEAD LAKE, CAL.

## DUPONT FILM MANUFACTURING CORPORATION

35 WEST 45TH STREET  
NEW YORK CITY  
PLANT . . . PARLIN, N. J.

SMITH & ALLER LTD.  
6656 .. SANTA MONICA BLVD.  
HOLLYWOOD, CAL.

THE  TRADE MARK HAS NEVER BEEN PLACED ON AN INFERIOR PRODUCT



# The First American Photograph



*Courtesy Eastman Kodak Co.*

"Miss Draper had to remain rigid for ten long minutes while the bright sunshine reflected from her heavily powdered face made an impression on the plate."

# INTERNATIONAL PHOTOGRAPHER

MOTION PICTURE ARTS AND CRAFTS

Vol. 7 HOLLYWOOD, CALIFORNIA, FEBRUARY, 1935 No. 1

SILAS EDGAR SNYDER, *Editor-in-Chief*  
EARL THEISEN and CHARLES FELSTEAD, *Associate Editors*  
LEWIS W. PHYSIOC, FRED WESTERBERG, *Technical Editors*  
JOHN CORYDON HILL, *Art Editor*  
HELEN BOYCE, *Business Manager*

A Monthly Publication Dedicated to the Advancement of Cinematography in All Its Branches; Professional and Amateur; Photography; Laboratory and Processing, Film Editing, Sound Recording, Projection, Pictorialists.

## CONTENTS

Front Cover by John Corydon Hill Still by Augustus Wolfman	
THE FIRST AMERICAN PHOTOGRAPH - - - - -	1
THE CINEMA AND THE TEACHING OF THE ARTS - - -	3
By Professor Henry Focillon	
THE MITCHELL CAMERA GOES AROUND THE WORLD -	4
By the Editor	
"THE MAN WHO WORE A SHAWL" - - - - -	6
By Silas Edgar Snyder	
MINIATURE CAMERA PHOTOGRAPHY - - - - -	9
By Augustus Wolfman	
HOLLYWOOD NOTE BOOK - - - - -	10
By Earl Theisen, Associate Editor	
DON LEE TELEVISION WAVES PASS AROUND OBSTACLES	12
By the Editor	
RECENT PHOTOGRAPH AND SOUND PATENTS - - -	14
By Robert W. Fulwider	
I VISIT ART REEVES - - - - -	15
By Charles Felstead, Associate Editor	
THE FUNCTION OF THE CAMERAMAN - - - - -	16 & 17
By Curt Courant	
BELL & HOWELL ANNOUNCE MODEL 129 - - - - -	21
COLOR CINEMATOGRAPHY - - - - -	22
By H. O. Stechan	
STAGE PHOTOGRAPHING - - - - -	24
By Karl A. Barleben, Jr., F.R.P.S.	
CINEMACARONI - - - - -	26
By Robert Tobey	
16 MM. SOUND ON FILM OUTLOOK - - - - -	28
By W. B. Cook	
CLASSIFIED ADVERTISING - - - - -	30
OUT OF FOCUS - - - - -	32
By John Leezer	

Entered as second class matter Sept. 30, 1930, at the Post Office at Los Angeles, California, under the act of March 3, 1879.

Copyright 1934 by Local 659, I. A. T. S. E. and M. P. M. O. of the United States and Canada

Office of publication, 1605 North Cahuenga Avenue, Hollywood, California  
GLadstone 3235

James J. Finn, 1 West 47th St., New York, Eastern Representative  
McGill's, 179 and 218 Elizabeth St., Melbourne, Australian and New Zealand agents.  
Subscription Rates—United States and Canada, \$2 a year. Single copies, 25 cents.

This Magazine represents the entire personnel of photographers now engaged in professional production of motion pictures in the United States and Canada. Thus THE INTERNATIONAL PHOTOGRAPHER becomes the voice of the Entire Craft, covering a field that reaches from coast to coast across North America.  
Printed in the U. S. A. at Hollywood, California



80 I.P.E.U.  
SERVICE ENGRAVING CO



## PROSPECTS FOR MARCH

The March issue of THE INTERNATIONAL PHOTOGRAPHER will be a bigger, better book and among the favorite authors to contribute are Associate Editor Earl Theisen, Special Writer Paul R. Harmer, Augustus Wolfman, Ray Fernstrom, Associate Editor Charles Felstead, Robert Tobey, Fred Westerberg, Technical Editor; Karl A. Barleben, Jr., F. R. P. S.

There will be an article on "16mm Up To Date" and another semi-technical article by H. O. Stechan in the form of an interview on color in the cinema, with William Langton Prager. (See page 22, this issue.)

# 16MM.

FRED WESTERBERG'S  
BOOK ENTITLED

The  
Cinematographer's  
Book of Tables

Is not alone for the PROFESSIONAL Cameraman, but for the AMATEUR as well. It is a safeguard against mistakes, is a time saver and makes for efficiency. The book costs only \$1.00 and may be had at any dealer's.

# 35MM.





# THE CINEMA AND THE TEACHING OF THE ARTS

By PROF. HENRY FOCILLON

*of the Paris Sorbonne*

[Reprinted from *International Review of Educational Cinematography*,  
Published by the League of Nations.]

**I**S there not an incompatibility between the plastic arts and the tendency towards movement? Does it not seem that the essential quality of a masterpiece is due to its eternal immobility, since it appears before us as a fixed and definite result that has overcome time and our interior anguish? Does not moving it mean destroying it? Architecture is based on the earth, its mass condemns it to a stability which never changes. If it ceases to be fixed, if it tends to move, is it still architecture? The great images of man which sculptors have raised on the horizon of our humanity are especially characterized by the fact that they do not move or change. Baudelaire conceived beauty in this form, and raised the statue to a compact, radiant thing.

If the masterpiece does not move, we do, however, and we feel the necessity of movement in order to grasp the statue's immobility. Our sight must take it in from all angles and in all its dimensions. We must step around it, and it is through this process alone, this walking round an object that we can possess it in a space not as a flat thing covered with designs but as a mass and a volume. When we do not have the work itself, but an image of it, cannot it be imagined that the latter, through a clever artifice, will move at our pleasure before us who remain motionless?

If we discard the use of the motion picture, we condemn ourselves to consider works of art merely as a collection of figures. Other pressing reasons invite us to reflect on the matter.

(1) A short while before his death—which deprived French art of a generous and elect spirit—Ruhlmann spoke to us about a film which he had prepared for his own amusement with an amateur's camera in the course of a trip in Southern Italy. He told us his delight in having learned how to see and re-examine with the aid of that wonderful optical memory, the lens, the masterpieces of ancient and modern architecture in classic lands.

A work of art is not an abstract thing, but forms part of a natural center, and belongs to the light which colors it. A monument is only a large drawing surrounded on every side by human life which takes up diverse associations with it. The temples of Agrigento and Selinunte preserve their intellectual beauty in an architectonic picture in a well made photograph, but one rich and substantial quality is missing in them. Their life in the photograph is sad and arid compared to their existence in nature and natural surroundings, where we walk under a changing sky, past shadows that tremble over a ground steeped in reflections.

In order better to "understand" the cathedrals of old France, placed on their rustic acropoli on the heights of our old cities, we must retrace the old paths that lead up to them, pass through the narrow ways that cross the mountainside. This kind of thing does not imply any falsity nor the addition of any theatrical setting to the work of art; it means rather giving a work of art its due space in which it can live; it means associating it with history and modern life.

The approach is made by a mazy path where the marks impressed by the passing centuries can be seen. The object of art is discovered bit by bit. We see it under various aspects. It is no longer a concrete crystallization preserved for us under the glass of a museum show-case. It is something alive that lives with us.

The young folk will be especially sensitive to this progressive and multiform revelation of a thing of beauty. In this manner, it would be possible to make short "type" films for scholars, films which, while eliminating the merely anecdotal element, would preserve the living essence.

(2) The motion picture is more precious still for research work. Photography has done an immense service to our research specialists, but it has exposed us to some dangers. In the three-dimensional arts, architecture and sculpture, we tend to believe that volume is only the super-imposition and concatenation of a number of profiles. We have endeavored to show that profiles can be innumerable, but even if we could fix and project many of them with stills, we should not obtain the fundamental mass feeling of the interdependence of the parts and the manner in which they accord with one another and make their equilibrium.

I am convinced that the cinema is capable of showing us—through the powerful effect of moving light which is more revealing than our own sight—certain processes and effects of relief, clash, quick movement and roughness.

Animated drawings can prove extremely useful in ornamental studies. The life of forms does not always proceed by way of sudden mutations, and still less through sudden creations *ex nihilo*. Baltrusaitis has shown in his celebrated work on *The Stylistic Ornamentation of Roman Sculpture* that a strict and rigorous dialectic is capable of producing incalculable variations of the same motive which change under our eyes almost without our perceiving them. The rules laid down by the author already constitute elements of the film. A few intermediate inflections can make the innumerable metamorphoses of the Roman capital live again for us.

This is not a secondary or special aspect of our inquiry. All the arts that are based on abstract formulae—like those of the Orient—will derive great benefit from such a technique.

Finally, we should analyze the work of the artist's hands. Art is not a purely spiritual phenomenon, but is shaped out of raw material owing to certain concerted actions of our members. It is a triumph of man's hands.

Admirable films have been made on the playing of the pianist. Could not an experiment of this kind be made on the hands of a painter or a sculptor? The pianist's technique has certainly something quite definite about it, and is exercised on notes or keys which are always in the same position, while the painter or the sculptor move their keyboard about so that the variety of their attack is apparently quite free. This is only

(Turn to Page 18)

# MITCHELL CAMERA GOES AROUND THE WORLD

*Charles H. Christie Introduces Hollywood's Own Camera to the Rising Producers of the Orient*



AFTER a visit to fourteen countries in the Orient and Europe, Charles H. Christie has arrived home, in Hollywood, to report a successful trip to the Mitchell Camera Corporation he represented as special salesman on the journey.

Mr. Christie needs no introduction, as both he and his brother Al were practically the motion picture founders of Hollywood, with a background of great success in the comedy field.

Mr. Christie arrived in Japan in May, 1934, and spent several weeks in Yokohama, Kyoto, Tokyo, Kobe and Osaka, the five motion picture production centers of Nippon.

At Tokyo he found five studios operating and, at Kyoto, he visited six studios, among them being a production company at the head of whose photographic department is Harry Mimura, a graduate of Hollywood studios and a member of International Photographers.

At Kyoto, also, Mr. Christie met our old friend, the celebrated Sessue Hayakawa and his wife, who are both starring in Japanese pictures with sound.

Mr. Christie states that the report to the effect that Japanese pictures absorb more raw film than any other country is erroneous. According to his information the United States ranks first, Great Britain second and Japan third.

At Tokyo there is a great photo-chemical laboratory called the P. C. L., the biggest in the Far East and here, also, is located D. Nagase & Co., the Bruloutour of Japan, agents for raw stock in the Orient. Mr. Nagase is a graduate of Harvard and the head of a house of exporters and importers more than one hundred years old.

Mr. Christie finds the acting good in the Japanese feature pictures, but the length will often reach nineteen reels, which decidedly militates against the box office in that the present arrangement gives the fans two shows for the price of one.

The Japanese producers make no pictures for American audiences just now, but they hold the belief that the time is here when the proposition to produce pictures for the United States should be seriously studied. Competent judges hold that the only real obstacle is the Japanese story, but that American screen writers can in time remedy that.

The P. C. L. Studio, at Tokyo, has been successful in producing travelogues and this class of picture is becoming more and more popular throughout the Orient.

Mr. Christie found Mitchell cameras in all leading studios, but little manufacturing of camera, laboratory and printing equipment; he also found intense interest in 16 mm. photography and color, the latter, of course, only in the dream state at this time.

After several weeks in Japan, during which he was beautifully entertained and placed orders for a large volume of business, the ambassador of Mitchelldom set sail for China where he disembarked at Shanghai, the cockpit of the Orient.

Here he had to deal with the two centers of motion picture production in China—Shanghai and Canton and here he made a friend of Newsreel Wong, the Fox

Movietone genius, and of Ariel Varges and Bruno Lessing of Hearst Metrotone.

He reports one studio in Canton; three in Hong Kong and four in Shanghai and a decided spirit of cinema mindedness among the Chinese producers. The country needs only long continued peace to build up a real motion picture industry and to bring into being thousands of modern theatres. Business was also good there.

Mr. Christie's next jump was Hong Kong to Singapore, leaving Australia, Java and Manila for another visit.

This stronghold of the British was picture struck, with theatres showing features in Hindu, Chinese, Tamil, American and English, but production in that part of the world is practically nil.

In Rangoon, Burma, there are four small studios and prospects for others as time goes on and the producers were bound to be enthusiastically responsive to the up-to-date equipment.

Calcutta was the next stop of Mr. Christie and there he found eight busy studios, three of them headed by the well known Madan Brothers, pioneer producers and exhibitors of the great and rich province of Bengal. Here Mr. Christie sold six fully equipped Mitchell cameras and then proceeded to Madras where a new studio equipped for heavy duty production had been opened but recently. In Madras, also, the ambassador found business waiting for his advent and he believes that Madras is due to become an important producing center in India.

Then on to Bombay, the biggest production center in India. The Bombay district includes Poona and Kohlapur, the most active in the Eastern world outside of Japan, even approximating Hollywood in the number of features. Mr. Christie spent three weeks in Bombay and during that time he was honored with an invitation to address the Motion Picture Society of India on the subject of the cinema in general and Hollywood in particular, a subject which his long and varied experience enabled him to treat in a manner to delight his large and enthusiastic audience.

In regard to production conditions in India, Mr. Christie said in part:

"The film industry in England, France, Germany and Japan has been going through the same process of centralization at one place. In India, on account of vastness and the language problem the industry may have two or more centers, the number being as small as possible.

"From what I have seen in Japan and India the position of the industry in both the countries is analogous. On account of the languages the market of the talkies being limited, it will be advisable for Indian film producers to penetrate far and wide in the country and produce pictures for the home market, the question of producing pictures for the international markets being left for only rare attempts. Barring a few British pictures of extraordinary merit no other English pictures have found a market in America. India could not be said to have progressed far in this country. Indian pictures are very, very long and the tempo of the picture





Upper left—"Soiled Silken Shoes," starring Chicko Takehisa. Behind the camera is our own Harry Mimura. Upper right—"Giving a Sync Mark." Lower left—Shooting a close-up of Miss Sachiko Chiba, P. & L. Studio, Tokyo, Japan; Harry Mimura, cameraman. Lower right—Star Motion Picture Company on location near Shanghai, China. Center—Charles H. Christie, Vice-President, Mitchell Camera Corporation.

is very slow. The program should have variety. It must be balanced just like a good meal. India should produce 'shorts,' picturing the lifeways of the people in different parts of the country. The Indian film industry is at present producing only studio pictures. The natural scenic background could very well be brought into the studios as is now done in Hollywood with the help of the background projections. In short, India should try to learn to picturize a story in eight or nine reels."

While in Bombay one of a half dozen exhibitors changed his policy from running American and European pictures to exclusive Indian policy.

The Bombay Radio Company, controlled by Abdulla Fazelthoy & Sons, became agents for India of the Mitchell Camera Corporation, Inc., and, under the direction of Mr. Christie, their agency was inaugurated by large sales of cameras and equipment.

Cairo, Egypt, was the next stop after Bombay and there Mr. Christie encountered an encouraging sentiment in favor of production.

Rome was the next on his itinerary and here the L. U. C. A. were making pictures and scenics for the government.

Another studio was building some distance from Rome, while at Turin a new company had been formed to take over the old Cines plant where the celebrated picture "Cabiria" was made. Business in a cinematographic way was good and Mr. Christie looks for a revival of the good old days when Italy was one of the aces of the cinema.

At Nice our ambassador met Syd. Chaplin and Rex Ingram. They were happy and apparently prosperous. At Paris production was fairly active, while at Joinville, the big plant of the Paramount, was busy with independents and he gathered that American pictures were still mighty popular in France.

Mr. Christie sojourned two weeks in Munich where he found a healthy market in equipment, but he was called to England before he could go further.

At London he came in contact with the many American boys who were holding down good jobs with the British production companies.

He spent four weeks among the various studios and handled a large volume of business in both Mitchell cameras and equipment, with more in sight.

He found the tone of business better in England than in any foreign country and conditions in picture production little less than ideal, with a flattering outlook into the future.

Gaumont, Elstree; London Film Productions, with Alexander Korda at the head—all are at present active and with bigger and better pictures coming up.

Mr. Christie arrived, returning, at the home of the Mitchell in Hollywood, about Christmas and the sum total of his impressions on his circumnavigation of the earth, is that the whole world is becoming more movie-minded every day and that if business isn't good enough at home all you got to do is to take a trip around the world and bring the bacon back with you.

## TELEVISION IN ENGLAND

The television committee of inquiry, chairman of which is Lord Selsdon, one-time P. M. G., has completed its investigations, and will probably table its report towards the end of February.

No authoritative statement, of course, is yet available, but it is known that the report will deal with big-scale television, under Government control, and will give special attention to the broadcasting of films.

Amending legislation to the Wireless Telegraph Acts will probably go through the House in spite of opposition from a section of the B. B. C.

I forecast that by the end of June television sets will be available to a wider public, priced at £30.

Members of both Houses will secure amendments to deal with an expected monopolisation of television talent by certain private interests.—The Weekly Kinematograph.

# "THE MAN WHO WORE A SHAWL"

By SILAS EDGAR SNYDER

TIME: Early spring in the year 1865, about sunset.

PLACE: Grant's headquarters at City Point on the James River near Richmond, Virginia.

## CHARACTERS

ABRAHAM LINCOLN - - President of the United States on a visit to the headquarters of General Grant, commander-in-chief of the armies of the United States at war with the Confederate States of America.

COLONEL JOHN HAY - Secretary to President Lincoln.

RICHARD COLEMAN - - Private U. S. Volunteer, condemned to be shot for desertion. About twenty years old.

Rise of curtain discovers room set apart for President Lincoln's use at City Point. It is plainly furnished as per sketch attached. Room is in semi-twilight lighted only by the afterglow of the sunset streaming through the window upstage at left and the fitful fire in the fire place.

Enter Colonel John Hay, Secretary to President Lincoln, through door at right, with a sheaf of letters and official documents in his hand. He is dressed in a colonel's uniform of the U. S. A. and wears a sword. He lays hat and papers on table, unbuckles sword belt and lays belt and sword on table. Then he arranges letters and papers, goes to fire place and stands with back to fire warming himself. A dim light is streaming in at window and after Hay has stood for a few seconds at the fire place the familiar silhouette of Lincoln's head and shoulders is seen at window. It pauses a moment, then slowly passes the window from left to right. A few seconds later he enters at the rear door and speaks:

"Humph. Good evening, Hay. You must have had your supper early. These raw spring evenings get into a man's marrow."

As he speaks he divests himself of his great gray shawl and high hat which Hay takes. Lincoln walks toward fire place rubbing his hands and stands with back to fire, coat tails parted, hands behind him and legs wide apart.

Meantime Hay is speaking while hanging hat and shawl on nails in wall near sideboard:

"Good evening, Mr. President. It is a bit cool sir, but there's been too much excitement for me to notice it particularly. Looks to me like Lee can't stand the gaff much longer."

As he speaks Hay moves to the table and pulls up two chairs.

Lincoln speaks:

"Only Lee's genius backed by such fighting men could have stood Grant's pounding this long. It's Americans fighting Americans, Hay."

Then pausing Lincoln looks off into space and speaks slowly as to himself:

"Thank God, it is nearly over."

Then brightening up he asks briskly:

"Anything urgent since I went to supper?"

Hay reports rapidly:

"General Sherman and Admiral Porter are up for conference. Generals Grant and Mead will be here from Petersburg in an hour and General Sheridan is expected soon. Nothing new at Washington so I suppose all's quiet on the Potomac."

As he speaks Hay is lighting the lamp which he turns up throwing a flood of light on the table, but leaving the rest of the room in semi-darkness.

Lincoln speaks:

"Thanks."

As he speaks Lincoln strides toward table; his foot strikes a bunch of Tad's wooden soldiers; he stoops awkwardly and picks one up. He looks at it tenderly and speaks:

"Humph. I see Tad's been here. He will insist upon traveling with his own private army."

As he finishes speaking he continues to table and seats himself in chair. (No. 1.) He places the wooden soldier on the table before him and speaks:

"Ready?"

Hay answers:

"Yes, sir."

at the same time seating himself in chair. (No. 2.) very close to the President so that they may read from the same paper when necessary. Lincoln shows by his cheerful manner that all is going well.

Hay speaks:

"General Blank writes again to protest against your latest pardons of soldiers condemned to be shot. He says you are ruining army discipline."

As he speaks Hay passes Blank's letter to the President.

Lincoln glances over the letter, then speaks:

"I like General Blank, but he's too much of a martinet. He thinks that the most effective way to reform a man is to shoot him. Also if Blank had his way there wouldn't be a volunteer officer in the army. He reminds me of a story good old Peter Cartwright used to tell back there in Illinois."

"Early in the forties there were only three preachers in Springfield—Methodist, Baptist and Presbyterian. One day a young fellow showed up and announced that he intended to organize a Universalist Church there. The three parsons already on the ground became very indignant and decided to combine against the newcomer. Their plan was to preach him down and the Methodist parson was given the first shot. After an hour of fiery denunciation the good old preacher concluded with: 'Why, this young upstart says that ALL shall be saved, but my dear brethren, let us hope for better things!'"

Hay listens with evident relish as the President draws out his story and joins Lincoln in a hearty chuckle at the end—Lincoln sits silent a moment fingering his beard, then his face resumes its sad, serious expression. He picks up the wooden soldier and look at it—then speaks slowly:

"Tad agrees with me that our Boys in Blue should not be shot by firing squads. In all his soldier play I have never seen him execute a soldier."

He pauses, smiles affectionately at the wooden soldier and speaks:

"Write General Blank that I will consider his protest and write him later."

As Lincoln finishes speaking a company of soldiers marches past back stage, right to left singing:

"Mine Eyes Have Seen the Glory of the Coming of the Lord."

Lincoln pauses and listens attentively, then sighs deeply. He speaks:

"The boys are happy. They think they're going home soon. God grant they may. What's next?"

"P. T. Barnum, the showman, wants an autographed picture of you, Mr. President."

"Haven't a picture to my name, Hay. Tell Barnum I refuse to join his menagerie. That reminds me of a good joke on myself."

"Just after I was nominated at Chicago in 1860 an enterprising fellow thought that a great many people would like



to know how Abe Lincoln looked so he took a photograph of me and got out a lot of wood cuts to sell during the campaign. Soon after they reached Springfield I heard a boy crying them for sale on the streets: 'Here's your picture of Abe Lincoln,' he shouted. 'Price only two shillings. He'll look a good deal better when he gets his hair combed!'"

Both Hay and Lincoln laughed heartily and the President asked:

"Anything else important?"

"And here's another letter from the Committee of Public Safety of Concord demanding General Grant's removal on the ground that he drinks whiskey."

Hay passes the letter to the President as he speaks. Lincoln strokes his beard thoughtfully a few seconds then speaks:

"Humph. Thank the Committee and ask them to find out what particular brand of whiskey Grant uses. I'd like to send some barrels of it to a few other generals I know."

The President chuckles quietly and Hay smiles sympathetically as he makes notes.

As Lincoln finishes a drum marking time is heard in the distance back stage to left and it gradually approaches, sounding louder and louder. Both Lincoln back stage and Hay pause and listen and as the sound comes just outside Lincoln strikes his hand on the table and speaks:

"Make haste, Hay, and see what that is."

Exit Hay hastily through door at rear; closes door and is heard to call out:

"Halt, Lieutenant. Who is your prisoner? The President wants to know."

There is the sharp command:

"Halt!"

Then:

"Private Coleman, sir. Condemned to death for desertion. To be shot at sunrise."

While this exchange is going on the President is listening attentively and as the officer ceases he speaks aside with a show of impatience:

"Why will they continue to shoot my boys!"

Then he calls loudly:

"Send Coleman in here, Hay!"

Hay speaks back stage:

"The President will speak with the prisoner."

The officer speaks back stage:

"Order arms! Rest in place! Fall out, Coleman!"

Hay opens the door to admit Coleman, a mere boy, unshaven, bare headed and clad in a dingy blouse and trousers, blouse open at the throat.

The President motions Hay to leave them alone and Hay steps outside and closes door.

Coleman enters timidly with drooping head and downcast eyes. He stops just inside the door and waits. The President regards the boy with kindly eye and after a brief pause speaks:

"Good evening."

"Good evening, sir."

"Er—just step over here, please."

The boy walks over close to the table and stands facing the President near the end. He is plainly nervous and very miserable, his every move indicative of profound dejection.

The President speaks:

"Did I understand your name aright? Is it Coleman?"

"Richard Coleman, sir, private Maryland Volunteers."

"It's a good name. I have some old friends named Coleman back in Illinois that I think a good deal of."

The boy is silent.

The President resumes in a tender, friendly voice:

"Now, my boy, tell me all about your—trouble."

Coleman is silent a moment then begins in a choking passionate voice:

"On my last furlough home I was married—an old school girl sweetheart she was and—three weeks ago I had a letter that—well, sir—that said—"

Here the boy hesitates and his voice chokes. The recital is obviously distressing to him.

The President speaks, his voice full of sympathy and encouragement:

"Yes, my boy—"

"Well, sir, the letter said that there was to be a—a—baby, sir, and that she had no money and nobody to look after her and she begged me to go to her if I could. I asked leave but the Colonel turned me down. I was crazy, I guess, sir—but I just had to go, Mr. President—I couldn't leave her there alone—could I, sir?—and then the baby came—but she—she just couldn't seem to rally, sir, and—my baby hasn't any little mother now—"

The boy, chokes and sobs while the President looks down

and surreptitiously brushes away a tear—the boy bursts out again:

"When it was all over I came back and reported for duty, sir, and they charged me with desertion—and sentenced me to be shot—I'm not afraid to die, Mr. President, that isn't it—but I'm not a deserter at heart and my record is clean all except that—I guess it don't make no difference now—though—Anne—she's gone—"

The President looks up and speaks quickly:

"Anne? Did you say her name was Anne?"

"Yes, sir."

The President fingers his beard and looks off into space a moment, then speaks:

"Desertion in the presence of the enemy is a serious breach of discipline, my boy. So serious is it that it has been made a capital offense in army regulations. The laws of war are hard and at times cruel but the great purpose to be served is safety of our country and our army. This is the great crisis of the war and every man is needed at his post."

The President pauses—and the boy evidently feeling that there is no hope droops and his body sags in utter hopelessness.

The President asks:

"Any relatives living, Coleman?"

"Only my boy, sir," and he reaches into his blouse and takes out a tin type which he hands to the President without looking up.

The President speaks as he looks at the picture:

"What a fine boy to fight for—to die for—"

At this Coleman bursts out passionately:

"That's just it, sir. I deserve to die and I'm willing to go but what'll my boy think when he grows up and learns of my disgrace. I just can't bear it, Mr. President. Couldn't it be said I was killed in action?"

The President pauses again and hands the picture back to Coleman who, feeling that the interview has ended, slumps into a posture of despair. The boy is so shaken that he no longer attempts to hold the attitude of "attention" and catches at the table with his left hand as he totters. Then the President arising and laying his right hand on Coleman's left shoulder, speaks:

"My boy, I have faith in you and I'm going to give you another chance. Go back to your regiment, redeem yourself and when the war is over come to see me at Washington—and bring that boy with you!"

The words act like a galvanizing shock on the boy who looks up bewildered, and exclaims in choking voice:

"You mean—I'm not—!"

The President interrupts:

"You're not going to be shot. We need live soldiers in this final struggle—dead men cannot help us."

As he speaks Coleman, completely overcome, drops on his knees and kisses the President's big fist, while with his other hand Lincoln touzles the boy's hair. After a few seconds Coleman arises and rushes toward the door while Lincoln calls:

"Hay!"

Hay enters as Coleman exits, while the President sits at the table, pulls paper and pen toward him and writes, then hands the paper to Hay:

"Give this to the officer."

As Hay exits Lincoln looks off toward the fire in deep study while outside the Lieutenant in charge of the firing squad is heard to order:

"You're free to go, Coleman. Platoon! Attention! Shoulder arms! About face! Forward, march!"

The drums beat and as the men march away back left they sing:

"Mine Eyes Have Seen the Glory—"

Meanwhile Lincoln has walked to the fire place standing, as before, with his back to the blaze. Hay returns and Lincoln speaks:

"It rests me when I can save a man's life and I can sleep in peace when I think of the happiness his pardon brings to his friends and loved ones. You can write General Blank—that he need send me no more death warrants for I'll never sign another!"

As the President speaks he walks toward the window still carrying the wooden soldier and stands looking out while Hay resumes his seat at the table. In the distance, growing fainter and fainter, is the singing and the drum and, as the curtain slowly descends, a bugle is heard far away. The last great conference before Appomattox was assembling.

# MINATURE CAMERA PHOTOGRAPHY

**P**ARAPHENYLENE-DIAMINE Hydrochloride: One of the beauties of miniature camera photography is the rapid forward strides it is making. Many miniature camera workers are active experimenters, making interesting discoveries, and manufacturers also keep pace with the rapid tide of progress constantly presenting the photographer new and improved products with which to work.

Paraphenylene-diamine has been serving admirably for some time, but now we have an improved product—Paraphenylene-diamine Hydrochloride, which has been announced by both the Stone Laboratories and the Photo-Crafts Laboratory, both designating it by the abbreviation P.D.H. P.D.H. has the following advantages over the plain paraphenylene-diamine:

1. It is completely soluble in cold water.
2. It is stainless—an advantage which you can well appreciate if you recall the many stains produced around the kitchen, or in the laboratory, from spilling paraphenylene-diamine solutions.
3. It is a more stable chemical and keeps well in solution.

New formulas have been devised for use with Paraphenylene-diamine Hydrochloride which are reproduced below:

## Dr. Parker No. 78

For normal exposure.

P. D. H. - - - - -	3 grams	45 grains
Sodium Sulphite (anhyd.) - -	25 grams	375 grains
Verebest P. P. Phosphate - -	6 grams	90 grains
Distilled Water - - - - -	½ liter	16 ounces

Average developing time: 30 to 40 minutes at 70°F.

## Dr. Parker No. 76

For normal exposure.

P. D. H. - - - - -	6 grams	90 grains
Sodium Sulphite (anhyd.) - -	30 grams	450 grains
Glycin - - - - -	3 grams	45 grains
Verebest P. P. Phosphate - -	13½ grams	40 grains
Distilled Water - - - - -	½ liter	16 ounces

Average developing time: 14 to 16 minutes at 70°F.

## Dr. Parker No. 72

For normal exposure.

P. D. H. - - - - -	6 grams	90 grains
Sodium Sulphite (anhyd.) - -	30 grams	450 grains
Glycin - - - - -	3 grams	45 grains
Verebest P. P. Phosphate - -	18 grams	270 grains
Borax (crystals) - - - - -	5 grams	75 grains
Distilled Water - - - - -	½ liter	16 ounces

Average developing time: 14 to 16 minutes at 70°F.

## Dr. Sease No. 3 (Modified)

For double normal exposure.

P. D. H. - - - - -	6 grams	90 grains
Sodium Sulphite (anhyd.) - -	45 grams	1½ ounces
Glycin - - - - -	3 grams	45 grains
Distilled Water - - - - -	½ liter	16 ounces

Average developing time: 30 minutes at 65°F.; 25 minutes at 70°F.

Formula No. 78 is rated as giving the best grain whereas Formulas Nos. 72 and 76 give sufficiently fine grain for average use. A new alkali compound is listed above—Verebest Pure Photo Phosphate. This is a pure Monohydrated Sodium Phosphate distributed by the Photo Crafts Laboratories and requires only one-half of the quality of the Trisodium Phosphate because of the removal of excess water. The above formulas are those

recommended by the Photo Crafts Laboratory. Below are reproduced those developed for use with P.D.H. by the Stone Laboratories. In this case you will also notice the use of a new monohydrated alkali which is distributed by the Stone Laboratories—Esspho. When using Esspho for formulas containing sodium carbonate, one-half of the amount of Esspho is used that would be required of dessicated or anhydrous carbonate, and only 40 per cent of monohydrated sodium carbonate that is required; as in the case of Verebest P. P. Phosphate, only one-half the amount of Esspho is used as is required of Trisodium Phosphate.

## Formula S-8

Produces the finest grain.

For normal or overexposure.

P. D. H. - - - - -	6 grams	90 grains
Sodium Sulphite (anhyd.) - -	50 grams	750 grains
Esspho - - - - -	12 grams	180 grains
Water - - - - -	1 liter	32 ounces

## Developing Time:

All S. S. Panchromatic, 30 to 40 minutes at 70°.

Plenachrome, Verichrome and F. G. Plenachrome, 35 minutes at 70°F.

Panatomic and Micropan, 30 minutes at 70°F.

At 65°F. increase the time five minutes.

## Formula S-6

For under exposure.

P. D. H. - - - - -	6 grams	90 grains
Sodium Sulphite (anhyd.) - -	30 grams	450 grains
Glycin - - - - -	3 grams	45 grains
Esspho - - - - -	13½ grams	200 grains
Water - - - - -	1 liter	32 ounces

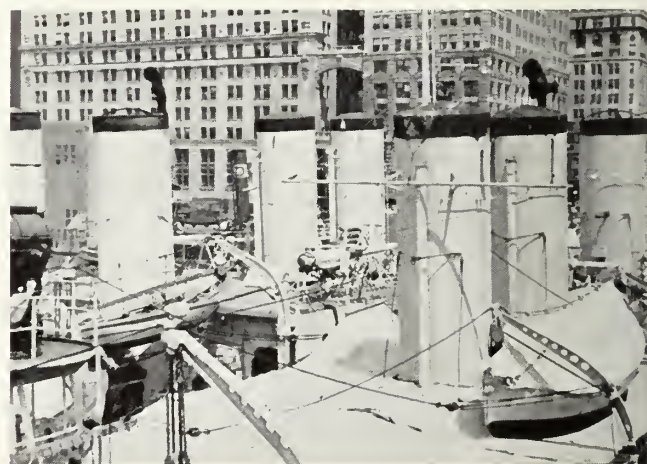
## Developing Time:

All S. S. Panchromatic, 16 to 18 minutes at 70°F.

Other films, 12 to 14 minutes at 70°F.

At 65°F. develop two minutes longer.

Many new improved chemicals have been introduced lately which are quite a boon to the miniature photog-



Funnels: Exposure was made on Panatomic film, which was developed in Paraphenylene-diamine—Glycin, and printed on P. M. C. Bromide.

rapher in that they represent purified high grade chemicals which will help to produce better fine-grain negatives. Amongst those are the two alkali compounds mentioned above, Pure Photo Phosphate distributed by the Photo Crafts Laboratory and Esspho distributed by the Stone Laboratories. Another new and efficient alkali



compound is Kodak made by the Eastman Kodak Co., which was described in a former installment of this department.

The Edwal Laboratories have recently announced a fine grain sulphite in which the small amount of residual sodium carbonate, present in most photographic sulphite, has been removed, and also the amount of iron present is reduced to a minimum. While the impurity iron in sulphite is of no import when the developer is mixed and used freshly, it is apt to give rise to staining if the developer gets old. Most photographic sulphite is a by-product of alkali fusions although some manufacturers who put out a superior product make it directly from sodium carbonate and sulphurous acid. In either case there is a small amount of residual sodium carbonate in the sulphite which raises the pH of the developing solution. The Edwal Laboratories remove this small amount of sodium carbonate from their sulphite.

It would be wise for the miniature camera photographer to try these new compounds for he most certainly will find that their use will manifest itself in improved fashion.



Winter Scene. Taken on DuPont Panchromatic film using a 3x filter, developed for low contrast in Paraphenylene-diamine—Glycin, and printed on P. M. C. Bromide.

**New Agfa Films:** Agfa Ansco have recently announced that they will have available in the near future three new films for the miniature camera use, in the 35 mm. size. The first is an extreme fine grain film known as Finopan. It is slower than Agfa Superpan, giving more brilliant results and has a very evenly balanced sensitivity throughout the visible spectrum. An Infra-Red film will also be supplied which is not sensitized to any visible color except red. Its speed is said to be approximately that of Fine-Grain Plenachrome Film in daylight; but this is merely a rough indication, for no advantage can be gained by using such a film without the proper filters. With a light red or deep orange filter, daylight exposures are about 1/20 second at f:4.5 to f:6.3, and with the use of infra-red filters the above exposures must be multiplied from 10 to 20 times.

The third new film to be introduced by Agfa is a Superpan Reversible film. This will be quite a boon to those who make many photographs to be used solely to make film strips for projection, the intermediate printing of the positive being eliminated. With this film the exposures are made, the film developed, after which the negative image is dissolved away, the unaffected emulsion exposed to light and the film again developed, resulting in a positive. The film is of the fine grain type, and the tendency toward fineness of grain is also inherent in the reversal process because the larger grains are first developed and then removed, leaving only the finer grains to form the ultimate image.

## By AUGUSTUS WOLFMAN



This film is rated as having extreme latitude, but nevertheless in the reversal process we are limited when making the positive, for we are working with whatever emulsion is left after the developed negative is dissolved away. It is best to employ a good exposure meter, obtaining correctly exposed films and uniform results.

**Embossing Prints:** It is often stated that, "The print is the final thing by which we are judged," and we should therefore take pains to "dress" up our prints so as to enhance them as much as possible. One method of greatly improving the appearance of a print is to frame it and a simple, unobtrusive means of accomplishing this is to emboss the print. The print is made on a large paper, leaving plenty of border space, as a 6"x9" print on a 11"x14" paper, or a 5"x7" print on a 10"x12" paper. The embossing line is made about  $\frac{3}{8}$  inch from the top and sides and about  $\frac{5}{8}$  inch from the bottom, a form being cut which is about the same thickness as the print—an old print will serve the purpose admirably. If the picture area of the print is 6"x9" and the above measurements for the embossed line are selected, the form would be 6 $\frac{3}{4}$ "x10".

An expedient will be necessary for adjusting the form and print for which may be used a piece of plate glass with a light underneath. The form is placed on the glass, the print placed over it and adjusted, and then a print embosser is run over the back of the print following the edge of the form. The embossing tool can be obtained at almost any photographic supply store. In lieu of that a tool for this purpose can be improvised at home such as the handle of a tooth brush.

An extremely simple means of embossing prints is to use a special contraption such as the Fassetto Embossing Tool. This apparatus obviates the use of a form. The print is merely placed in it face up and the embossing tool run along the proper edge.

Before prints are subjected to embossing, it is necessary to slightly soften them to obtain smooth die-sunk lines. For this purpose the prints are moistened on the back with a 50% solution of alcohol—I have found the ordinary 70% rubbing alcohol sold at drug stores to serve well. The prints are then placed in a press for about 20 minutes, after which they are embossed. It is surprising to what extent the appearance of a print is improved by employing this principle—making it on large paper, thereby leaving a wide border and then embossing the print.

With the usual easel it may be difficult to make 5"x7" or 6"x9" prints on 10"x12" or 11"x14" papers. It is best in such cases to choose a definite picture size and make masks which will accommodate the sizes of the papers used. I have found that masks in the form of an envelope in which the paper fits snugly serves the purpose well. As I have mentioned before, much can be contributed to the appearance of a print by "dressing" it up properly.



By EARL THEISEN  
(Associate Editor)

After seven years of hey-deying without ever touching water, the good ship "Paramount," a landmark in Hollywood, is to be torn down. This ship-setting in the Paramount Studio has served duty as ocean liner, private yacht, tramp steamer, and freighter, serving in thirty-seven pictures. Many of the leading film stars have trodden its earthbound decks, while thousands of extras have lined the adjoining wharf to cheer countless arrivals and departures for the benefit of camera and microphone.

Time after time throngs attracted by the brilliant set lights have gathered at night outside the Paramount Studio to watch the filming of a picture. By day it has lent atmosphere to Hollywood and excited many visitors by giving them a semi-inside view of a Hollywood studio.

Its single smokestack perched above the vessel's sides sixty feet high, has carried the marks of the most famous shiplines in the world.

The ship was built in April, 1927, and for years it was the only ship in Hollywood. Since that time it has served in Eddie Cantor's "Special Delivery," Wallace Beery and Raymond Hatton in "Fireman, Save My Child," George Brent in "Luxury Liner," Charles Mack and George Moran in their hilarious *Two Black Crows*, "Anybody's War," Marlene Dietrich in "Morocco," and in Claudette Colbert's "Four Frightened People," and in many, many others. It was last used by Gary Cooper, Carole Lombard and Shirley Temple in "Now and Forever."

Did you ever wonder where song writers get the ideas for songs? Song writers do not get an idea, and presto! There is a song. Not at all. Song makers stick at the job night and day, and as a rule bring practically every note out of their pores. Few songs are written at pianos. Perhaps an idea will come to a composer while in church, in the middle of a sandwich, while giving conversation, or in the middle of the night. That is the way it is with such noted teams as Robin and Rainger, Gordon and Revel, Rodgers and Hart, and Warren and Dubin. Ralph Rainger and Leo Robin have written songs for Bing Crosby, and each one was something of a hit. In the meantime quite a number of songs had been written only to be assigned by them to the limbo of bad songs. For the five hits they wrote, their waste basket was filled about five times with unusable stuff.

Rainger got the idea for "Please" while driving home from the studio. He thought of "Here Lies Love" while eating dinner, and "Love in Bloom" came to him while he was reading a book. The song, "Love in Bloom," was the twenty-third attempt of song writing by the team. For this song Rainger got the idea for some untitled music. He played it for Robin who tried numerous sets of words on a variety of subjects. Eventually they agreed on the words, and from this point they worked together,

# HOLLYWOOD NOTEBOOK

changing a note or a measure here, a word or phrase there. It was not presto!

Mack Gordon and Harry Revel wrote "Did You Ever See a Dream Walking?" in about fifteen minutes on a set at the Paramount Studio one afternoon. For "Good Morning Glory," the idea came to Gordon at 2:30 o'clock A. M. That is much before you and I get up. However, he got his partner up and demanded that he come to the studio right away. They spent the rest of the night, or morning, polishing it up.

"My Heart Stood Still" was the result of a taxi collision on a street corner in Paris. Richard Rogers and Lorenz Hart happened to be standing on the corner when the cabs collided. "My heart stood still!" remarked a bystander. A few minutes later the song was written.

That is the way it is; song writers perspire to make the rest of the world sing. Like anyone else who has a job to fill, and is doing it right, they work twenty-four hours a day. After looking in on the activities of song writers, I picture them in my mind going through life throwing discarded sheets of music over their shoulders. And perspiration, too. Occasionally at an odd moment one of them finds a song.

On one of the sets for "Once a Gentleman" at Columbia Studio, ten nations were represented among the featured players and stars. The countries represented were South America, Spain, Holland, Germany, Dalmatia, Russia, Austria, Italy, France, England, and others. Of course there were some Americans, too.

We have still another new profession in Hollywood. Zee Silvonina tells extras and "bit" players how to stand, sit, enter rooms, and juggle silverware. Of course the leading players don't need her ministrations. This new professionalist is the daughter of the man who interpreted the social law for Czar Nicholas of Russia.

Mysterious, vaporous ghosts were needed to add chills to the latest detective thriller, "Vampires of Prague." The picture required that a mist arise and assume human shape. How would you technically minded readers accomplish that? Well, it was done this way. Small dolls were made hollow like moulds. A chemical mist was then compressed into these dolls. When the moulds were opened quickly, and the mist liberated, it expanded, still keeping the shape of the inside of the mold.

John Nickolaus, chief of the Metro-Goldwyn-Mayer  
(Turn to Page 18)

Phone GLadstone 4151

## HOLLYWOOD STATE BANK

The only Bank in the Industrial District of Hollywood  
under State Supervision

Santa Monica Boulevard at Highland Avenue



# The Biggest Pictures of The Biggest Production Season of Recent Years

Will be

*Photographed*

*Recorded*

*Printed*

*With*

*Eastman Films*

• • • and THE LITTLE PICTURES, TOO

Because

*Eastman*

*Is Always*

*Picture Insurance*



J. E. BRULATOUR, INC.

# DON LEE TELEVISION WAVES PASS AROUND OBSTACLES

*"View Lots" Will Be in Demand When Television Comes In*

THE EDITOR



Reception of W6XAO at Valley View. Don Lee Television Coverage Survey. Don Lee Broadcasting System, Los Angeles, January, 1935. Left, Harry R. Lubcke, director of television (suitably attired for the cold) right, Donald Stephens, San Bernardino business man. Portable equipment in foreground.

Heralding television image service for mountain cottage owners in the Lake Arrowhead-Crestline district, as well as for residents of Greater Los Angeles, signals from the Don Lee ultra-high frequency television transmitter W6XAO in Los Angeles were received at Valley View, 56 miles away, according to Harry R. Lubcke, Director of Television for the Don Lee Broadcasting System. This was after the waves had passed through seven and one-half miles of rock which lay in the direct path between transmitter and receiver.

"Rather, the waves passed around the intervening mountains, and recombined to eliminate the radio shadow that would otherwise have there existed," stated Mr. Lubcke in describing the test. "The profile 'A' of the accompanying diagram, constructed from official data of the United States Geological Survey, shows the mountains in the direct line of sight, 'L' from 'M' to 'N.' Recombination was possible because of the considerable distance of eight miles between the last of the mountains at 'N' and the receiver location, 'R.'"

The signal strength at Valley View was surprisingly strong. The distance to the transmitter was greater than the forty to forty-five miles generally set as the limit of the service area of an ultra-high frequency transmitter. It was over half as great as at a representative location in the city, only four miles from the station.

Donald Stephens and John W. Newkirk, San Bernardino business men, witnessed the reception, and in spite of a strong, cold wind blowing at the time, heard the call letters, frequency, and time of transmission of the

station, regularly made to identify the transmissions by Announcer Wilbur Thorp.

In recording his observations Mr. Newkirk wrote: "I was able to hear every word spoken by the announcer, clearly and distinctly, but am unable to remember the announcement verbatim."

The Arrowhead reception was one of many that have been made by the Don Lee Television Department to chart television coverage over Southern California. Valley View affords a beautiful panorama of the San Bernardino valley, and it was this fact that made the reception possible in spite of the intervening mountain range.

Measurements in Los Angeles have shown similar results. Profile "B" shows a local condition to a scale four times larger than that of "A." The receiver was located at "R," three miles away from the transmitter on a considerable hill, but just over the top on the side away from the transmitter. This was an inferior location. On the side toward the transmitter, at "M," the field strength was five times greater.

Profile "C" shows another location, four miles from the transmitter, where the path "M N" through hills along the direct line of sight was several times greater. Still the field strength was only slightly less than for a clear line of sight path which obtained for another location in the immediate neighborhood. This was because the hills in case "C" were located a considerable distance from the receiving point and the waves, capable of slightly bending, filled in the area of low field strength directly behind the obstacle.

Since the terrain plays such an important part it is seen that a "lot with a view," and the view in the right direction, is the piece of real estate to buy. For the first time, perhaps, a tangible value can be assigned to a "view." It is not to be taken that such locations will be the only ones receiving good pictures. The major portion of any city of normal topography will be served efficiently by a centrally located ultra-high frequency transmitter, and only those parts directly behind a considerable obstacle will be at a disadvantage. Fundamentally, however, and to a vastly greater degree than is the case in the broadcasting of sound programs in the present broadcast band, will a hilltop be the favored location.

The reception at Arrowhead was accomplished with only an eight foot metal rod as the antenna, and this

**Kinema Krafts Kompany**

calling **AMATEURS**

and

**PROFESSIONALS**

Who want fresh 35mm. EASTMAN or DUPONT  
Gray Backed Negative.

Price—\$.02½ per foot

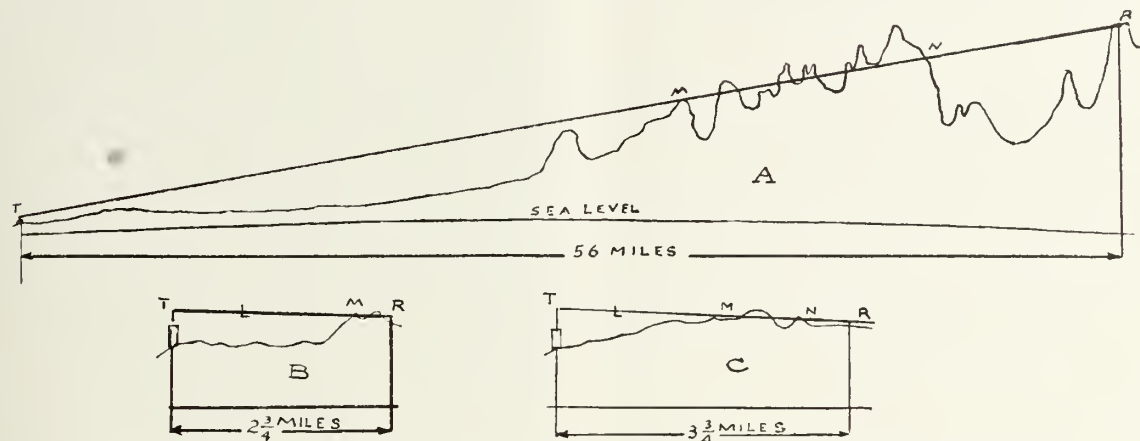
6510 Selma Ave. Hollywood, Calif. GLadstone 0276



was merely supported in a convenient hole in a tree stump. On the ultra-short waves used by W6XAO ( $6\frac{2}{3}$  meters) directional receiving antennas are easily constructed and add greatly to the signal strength obtained in any location.

television broadcasting stations will be located within, and perhaps near to each other, in the large city, all the possible programs will be available to such an installation.

With ultra-high frequency television it will be the exception, rather than the rule, to "fish for distance" or



Profiles of the terrain on three paths included in the reception tests of the television coverage survey conducted by the Don Lee Broadcasting System over Southern California. Profile A gives the contour of the land for the Los Angeles to Arrowhead (Valley View) path, and B and C two other paths north of the transmitter in Los Angeles.

The television equipment of the out-of-town looker of the future can be visualized as prominently including an antenna of several short wires arranged in a geometrical pattern, pointed toward the city, and elevated as high as reasonably possible. Directional antennas normally receive only in one direction, but since all of the

to receive from more than one "cluster" of stations. Each major city will have its television station or stations which will serve a local audience. Chain broadcasting features may be relayed by special relay stations or special wire lines, but the program will always come to the receptionist from his local station.

### HELP THE M. P. R. F.

Helping the Motion Picture Relief Fund is good insurance for the future. The cameramen owe a great debt of gratitude to the Fund for services rendered by this admirable organization, so it is only fair play to help the Fund when your skies are blue. Get acquainted with the good people who administer this Fund. They are worth while.

## ArtReeves AMPLIFIER Now Available In Rack Or Panel

*With the Following Features:*

FOUR MIXER POSITIONS

TRANSFORMER COUPLED

SIX TUBES, SAME SIZE

BATTERY BIAS

OPERATES ANY TYPE OF GLOW TUBE



"ArtReeves"

Head Phone and Loud Speaker Monitoring. Either straight line or toe recording.

## HOLLYWOOD MOTION PICTURE EQUIPMENT CO., LTD.

645 NORTH MARTEL AVE.

HOLLYWOOD, CALIFORNIA, U. S. A.

CABLE ADDRESS—ARTREEVES

## National Alliance Show On At Art Center School

Photography for business and industry reaches a high point of interest in Southern California as the National Alliance of Art and Industry and Photographic Illustrators' famed exhibition reaches the West coast.

From January 31st to February 9th, two hundred and forty prints by fifty-four of America's ace photographers will be on view at the Art Center School galleries, 2544 West Seventh Street.

This fine collection, brought here for its only Western showing by the photography department of the school, is representative of the achievements made in photographic fields during the past year. At its recent showing in Rockefeller Center, New York, and the Lakeside Press Galleries, Chicago, it was proclaimed the most significant of the year, and excited wide attention and interest.

The exhibitors: Russell Aikins, Barnaba Studios, Margaret Bourke-White, Anton Bruehl, Bruehl-Bourges, Gordon Coster, Emelie Danielson, James N. Doolittle, Forbath and Rejane, John Funk, Arthur Gerlach, Green-Bradley, Green-Fowler, Paul Hesse, Lejaren A. Hiller, Hukar, Eugene Hutchinson, Leigh Irwin, Alfred C. Johnston, Victor Keppler, Torkel Korling, Lakeside Press Studios, N. Lazarnick, F. S. Lincoln, Remie Lohse, Wendell MacRae, Ira Martin, Holmes I. Mettee, Nickolas Murray, Lusha Nelson, Harry Olsen, Arthur O'Neill, Pagano, Pagano-Wilbar, John Pennebaker, Howard S. Redell, William Rittase, Thurman Rotan, Verner Sapp, Sarra, Inc., Kurt Schelling, Gilbert Seehausen, Shigeta-Wright, Edward Steichen, Ralph Steiner, Bert Clark Thayer, Oliver Underhill, Underwood &



Underwood, Alfredo Valente, Vandamm Studios, Tony Von Horn, H. I. Williams, R. G. Wolff.

The exhibition will be open to the public from January 31st at 9 a.m. Galleries will be open in the evening until 9:30 from February 4th to 8th inclusive, closing at 5 on the final day, February 9th.

## Recent Photograph and Sound Patents

*The following patents of interest to readers of International Photographer were issued during the past month from the United States Patent Office and have been compiled by Robert W. Fulwider, patent and trademark attorney, 800 Clem Wilson Building, 5225 Wilshire Boulevard, Los Angeles, California.*

1,983,800—Cinematograph Camera. A. S. Hillman, assignor to Colorgravure, Ltd., London, England.

1,983,833—Acoustic Device. Stuart Ballantine, assignor to R. C. A.

1,983,910—Inscription Bearing Film and Ink for making same. H. Lummerzheim, et al., assignors to Agfa Anso Corp., Binghamton, N. Y.

1,984,086—Method of Processing Phot. Elements. H. D. Russell, assignor to Eastman Kodak Co.

1,984,090—Photographic Material for Making Colored Prints. M. W. Seymour, assignor to Eastman Kodak Co.

1,984,103—Reflex Finder for M. P. Cameras. Otto Wittel, assignor to Eastman Kodak Co.

1,984,111—Film Magazine. Nils Bouveng, assignor to Eastman Kodak Co.

1,984,133—Phot. Reversal Proc. & Bleach Bath for use therein. Kenneth Hickman, assignor to Eastman Kodak Co.

1,984,142—Continuous Projector for Nat. Color Projection. W. A. Kosken, assignor to W. A. Kosken, Inc.

1,984,143—Intermittent Film Moving Mech. W. A. Kraft, assignor to Eastman Kodak Co.

1,984,208—Sound Light Ray Intensity Control. Josef Engl, assignor to Engl Products Corp. of New York.

1,984,406—Recording & Indicating Sound. E. H. Foley, assignor to Filmtone Corp.

1,984,420—Camera (Color Stills). Gabriel Moulin and Fred Lathe of San Francisco.

1,984,438—Sound Camera. Earl Sponable, assignor to Movietonews, Inc., of New York.

1,984,456—Sound Record Cinematograph Films in Natural Colors. Charles Bonamico of London, England.

1,984,471—Lenticulated Film. Fritz Fischer, assignor to Liemens & Halske, Berlin, Germany.

1,984,481—Apparatus for Projecting Lenticular Film. Gerd Heymer, assignor to Agfa Anso Corp. of N. Y.

1,984,504—Color Photography. Arpad von Biehler, assignor to Agfa Anso Corp. of N. Y.

1,984,532—Process of Sonorizing Goffered Films and Product thereof. Isaac Kitroser, assignor to Keller-Dorian Colorfilm Corp. of N. Y.

1,984,580—Method of Producing a Negative by Reversal. Ralph Harrison of Detroit, Mich.

1,984,620—Multiview Camera Shutter. James Anderson, assignor to Anderson Mfg. Co., Hollywood, Calif.

1,984,847—Film Safety Cut-out for Moving Picture Machines. John Spence, assignor to Remac Patents Corp. of New York City.

1,985,031—Film Gate. Clinton Hanna, assignor to Westinghouse Electric and Mfg. Co.

(Turn to Page 31)



# I VISIT ART REEVES

By CHARLES FELSTEAD

When Art Reeves, the big boss of Hollywood Motion Picture Equipment Company, Ltd., invited me to inspect his laboratory at 645 North Martel Avenue, Hollywood, you may be sure that I was delighted; for I remembered the very pleasant and interesting afternoon I had enjoyed on a former visit to his combined laboratory and machine shop.

And I was not to be disappointed.

Art Reeves himself met me at the door. It is hard to find a man who is more genial, more genuinely pleased to show a guest around and tell about the things his plant is accomplishing, or who is more intimately acquainted with the special problems confronting the motion picture photographer and sound man. His laboratory is devoted to the devising of ingenious ways and means of solving those special problems, and of overcoming the numerous mechanical and technical difficulties encountered in the making of motion pictures.

One of the first things he showed me was a sound *Moviola* that he had just developed. It was the neatest and most compact machine of the sort that I had ever had the opportunity to inspect. The sound head with its attachments was bolted to a desk top and was hardly larger than a thick book. The amplifier and loud speaker were built into a cabinet that had been designed for a midget radio, and stood above the desk on a shelf.

For those persons who may not be familiar with the sound *Moviola*, it may be described as a miniature motion picture sound projection machine that is intended

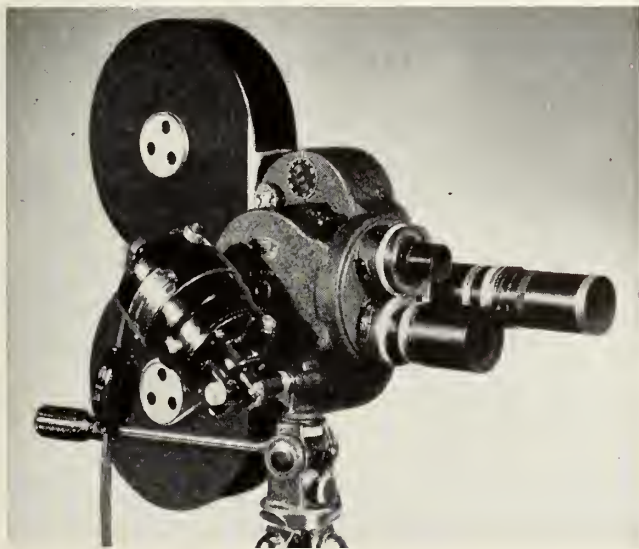
principally for the use of a single person—the motion picture film editor, or “cutter.” The sound portion of the film (the sound track) is drawn past an opening from which a light shines onto the sensitive surface of a photo-electric cell. The densities of the striations, or the amplitudes of the “saw teeth,” of the sound track serve to vary the amount of light reaching the photo-electric cell when the film is drawn past the light aperture. This causes a variation in the electrical output of the photo-electric cell which, after being stepped up in value by the audio-frequency amplifier, is converted into sound by the loud speaker.

Unlike most other machines of this sort, the Reeves sound *Moviola* is operated by drawing the film through by hand instead of driving it with an electric motor. The elimination of the complicated motor drive usually employed with sound play-back devices of this type greatly simplifies the machine. For sound track editing, moving the film by hand is even more satisfactory than driving it by motor, for greater accuracy in locating points at which to cut the sound track is possible with the manually operated drive.

Art Reeves then showed me a small portable densitometer that indicates the density (degree of opacity) of film directly on a meter that is connected to a Weston photo-electric cell. This device has not the same high degree of accuracy possessed by the standard densitometer; but its compactness coupled with its ability to pro-

*(Continued on Page 27)*

## • From Pole to Pole with the EYEMO



It is given to few to view in one lifetime the wastes of the arctic and antarctic, the sands of Sahara, the atolls of the Pacific. Yet the Eyemo 35mm. hand camera has seen them all. Between one explorer or another, one scientist and the next, one news gatherer or his colleagues, Eyemo has taken the world in its stride; and this is because it is the one piece of equipment always able to make the trip! Its technically perfect results qualify it for every post, its maneuverability makes it a practicable piece of equipment. Spring motor, hand crank, or electric motor drive its mechanism. Loads with 100-foot daylight loading spools, or with 200- and 400-foot external magazines. Seven film speeds (4 to 32 or 8 to 48, including sound speed). Variable area viewfinder. Three-lens turret. Write for descriptive booklet.

## • BELL & HOWELL COMPANY

1849 Larchmont Ave., Chicago; 11 W. 42nd St., New York; 716 North La Brea Ave., Hollywood;  
320 Regent St., London (B & H Co., Ltd.) Established 1907.

# THE FUNCTION OF THE CAMERAMAN

By CURT COURANT

Interviewed by Ernest Dyer

(By special permission of the Cinema Quarterly of Edinburg, Scotland)

**I**N the first place," said Courant, "the word 'cameraman' is unfortunate. The suggestion it conveys is too limited, too technical. 'Chief artistic collaborator,' were the phrase not so clumsy, would be less misleading. The cameraman collaborates with the director and the scenic designer and others so as to produce an artistic picture. At the same time he is the captain of a team of specialists. On this film, for example"—we had just come off the sets of *The Iron Duke*—"I am 'chief cameraman.' I have as assistants two 'first cameramen' and four 'assistant cameramen'—one first and one 'second' assistant to each camera. (We shoot everything through at least two cameras.) Then there are all the studio electricians.

"You ask me how far the cameraman is creative. Well, what does good camera-work imply? Is it just to secure a clear, clean, rich picture—a 'good photo' in the Kodak sense of the word? This is only the basis. No, good camerawork is to give to each scene the atmosphere which the scenario of the particular film calls for. Each room, each set, each exterior has to reflect the mood which is suggested by a reading of the scene. If the mood of the scene is sad, then the camerawork must be in harmony and must invest the scene with just the right *ambience*. I read the scenario like an actor and then try to interpret it in terms of atmosphere. Sometimes perhaps the result may not be 'good' photography in the Kodak sense, but that does not matter if it is the right camerawork artistically for that scene."

E. D.: "So we cannot evaluate any shot fairly apart from its sequence. That seems to me well illustrated by your own work in *Ces Messieurs de la Santé* where the lighting seems to change with the period, from the murky gas gloom of the little shop to the electric radiance of the modern store."

C. C.: "In those early scenes I wanted to make you *feel* the dust. You do not want the screen always bright. Think of the Paintings of Menzel and Rembrandt, so dark that you have to go right up to them, yet perfect in mood. We cameramen are after the same things as the old painters. Instead of pigments and brushes we use lamps. We paint with light. Instead of colors we have a scale in monochrome. But what our cameras record is what our imaginations create when we paint our sets with light."

E. D.: "To what extent do you control the sets themselves?"

C. C.: "That is a matter of collaboration with the designer and director before shooting begins. We discuss the sketches and models."

E. D.: "But that scene you have just been shooting, with that broken gun-wheel you arranged so carefully upon the mound, does your script give you the details of that?"

C. C.: "Oh, no. Such a scene can be arranged upon the floor. Then I paint my sky-cloth with light to help the composition. That big ball-room set you saw us shooting the other day—every column of it has its roundness touched off by some specially placed light, so that the scene had form and depth and pictorial bal-

ance as well as the softness appropriate to candle-illumination. The lighting made it a composition."

E. D.: "What of the risk that shots with intrinsic pictorial appeal may detract from the thematic content of the film? Robert Edmund Jones says that he is most content with his stage settings when they fit a performance so perfectly that the audience does not notice them. Does that apply to camerawork?"



B. P. Schulberg's Paramount Company on location. Left to right—Danny Fapp, operative cameraman, and B. P. Schulberg.

C. C.: "The photography should enforce, not distract from, the thematic content. Selfish photography is like over-acting. The beauty of camerawork must be absolutely lap-dissolved with the mood of the story. It is like some vital part in the mechanism of a watch. The audience—members of the average audience—should never be aware of the camera."

"For instance, the camera's angle of vision is more limited than that of the human eye, so that if we wish to convey the impression of the unhampered movements and gestures of George Arliss we have to follow him with pan and track and keep him always 'trained' by a moving focus. We must not allow him to be the prisoner of the frame. But the audience is not aware of that constant movement. When the audience feels that anything is technical then it is bad. So with angles. The right angle is the natural angle. When a technical trick is so good that the audience does not see that a trick is being used then it is artistic camerawork."

"Look at that set in there. A sound-stage lumped



with 100 tons of dirt and turned into the battlefield of Waterloo. Thirty electricians and 7,000 amps to light it. An artificial sky within a few dozen feet of the foreground. Yet the camera will give you a perfect illusion of miles of depth. Shafts of sunlight touching the stone walls and the branches of the tree. Every blade of grass almost with its separate lighting. The impression of an exterior rendered in the studio by artificial light!"

E. D.: "But why shoot it in a studio? Why not go outside to begin with?"

C. C.: "Good! Consider the scene. It is the afternoon of battle, between day and evening. There is a feeling of hopelessness on the part of the French. Ney makes his pathetic last stand. It calls for an atmosphere that is mellow and *triste*. What odds on finding that lighting when you wanted it in Nature! What hopes of *keeping* it fixed, if need be, for two days! Besides, there is the action to be lit, too. That may want lighting differently from the set. Different players need different lighting. I do not light Arliss as I light Veidt.



"Behold My Wife," starring Sylvia Sidney. Leisen, director; Leon Shamroy, chief ass. Sidney.

cessing or indulge in the tricks of delayed development and so on, beloved by the amateur photographer?"

C. C.: "Developing is mechanical, automatic, entirely uniform. The whole of a day's work, perhaps twenty set-ups—will be developed together in one strip. And the sound-track must have absolutely even development. (That is only one of the limitations imposed by sound.)

"It means that the cameraman in the studio is responsible for the balance of light and shade in the film shown on the screen. Day after day, through some 1,500 different set-ups, each with its slightly individual quality of lighting, he has to maintain a general level of light. All the time he has to have in mind the finished product on the screen.

"You ask how he is a creative artist. Consider. A camera is a machine, a vehicle for the film; the lens is a piece of dead glass; a lamp is a lamp; the film itself is a chemical product; the projector is another machine, another vehicle. The man who can visualize a scene in terms of these dead things and from them create a work of living beauty, he is a creative artist. That is my 'cry.'"

### DESERT LIFE IN NEW FILMO LIBRARY RELEASES

Filmo Library has secured, for immediate release, four silent 16 mm. films picturing animal, plant, and Indian life in America's Southwest. These films, each 400 feet long, are suitable for educational work. Also, they are entertaining subjects for general use.

*Wild Animals of the Desert* shows, in their natural habitat, the antelope, chipmunk, diamond back rattlesnake, badger, hydrophobia skunk, and coyote . . . their adaptation to their environment . . . their life habits. It also includes scenes portraying the life of an old desert prospector.

*Wild Life on the Deserts* pictures the topographical aspects of the desert of the Colorado in Southern California; its mountain barriers, its shifting sand dunes, a coral reef, remnant of the days when this was a sea, series of horizontal lines on the rocks marking ancient water levels, and the Salton Sea of today. Desert plants are shown, each with its peculiar adaptation to its trying environment; ocotilla, cholla cactus, Washingtonian palm, smoke tree, and others. The desert animals included in this film in scenes which portray their habits are the coyote, diamond back rattlesnake, sidewinder rattlesnake with his peculiar sidewise creeping, gila monster, grey fox, ring tail cat, wildcat, and scorpion.

*Hopi Indians of the Painted Desert*. How the Hopi Indians live in their pueblo dwellings in the colorful desert of northeastern Arizona; their well-tended farms, the planting of corn and preparation of corn meal, their methods of cooking, tending their herds of sheep, making baskets, and other Hopi customs.

### CHARLES FELSTEAD HONORED

At the quarterly business luncheon of The Professional Writers' League, January 8th, Associate Editor Charles Felstead was elected Vice-President by an unanimous vote of the members.

The membership of this organization is made up of persons who are actively engaged in professional writing for magazines, book publishers, or the motion pictures. A large associate membership is formed of persons who have sold their writings, but do not make a profession of writing. Mr. Mel Wharton was re-elected President of the League, and Miss Hinda Teague Hill continued as Secretary-Treasurer.

Gil Warrenton, stalwart son of the much loved Lule Warrenton, now deceased, has definitely been won over to the life of the rancho and has created a beautiful hacienda down south of Oceanside.

We experimented and found the quality of character lighting which would give Arliss the rugged Wellington mask."

E. D.: "So that you would light Arliss differently in two different films?"

C. C.: "Quite. A young girl on the other hand would need soft lighting."

E. D.: "To what extent can you modify the script once you are working upon it?"

C. C.: "The cameraman could always put a proposition to the director. Saville, though, works very close to script."

E. D.: "To what extent are you limited on the floor?"

C. C.: "Only by time. I have to have my lamps ready by the time the director is ready. Often perhaps I could go on trying still better lighting. But you cannot hold up a studio where hundreds of salaried players may be waiting."

E. D.: "To what extent can you control the pro-

## HOLLYWOOD NOTE BOOK

(Continued from Page 10)

film developing laboratories, has announced a new system of negative development. Until now the negative film was passed through the developing solution by machinery. The film traveled slowly in one direction with the result that certain products of oxidation accumulated and clung to the surface of the negative to hinder the chemical action of the developer. This caused an unevenness. Now a system is used at M-G-M whereby a chemical solution is forced against the film, insuring a new chemical source at all times during development.

In order to film "Vanessa: Her Love Story," some of the stunts of the days of the thrillers are being revived. Once again, the cameraman is buried in little iron-roofed dugouts, grinding furiously as the walls of a burning house crash down on their shelter. Also, an authentic red-blooded mob fight was filmed by Ray June for this picture.

Here is a letter from Royal Maulsby. It sound good to me, so I will pass it on. Thank you, Mr. Maulsby. Do it again!

"What can a layman say about the movies that would be of interest to the technician? His praise may please via the box office, but his adverse criticisms, because of ignorance of the problems involved, would always be destructive. Should we find fault where we cannot be constructive?"

"This writer is one of those strange people who likes his entertainment to do something more than merely amuse. A careful analysis of average audience reaction proves him in a flattering minority. Should minorities have a voice in a medium the very nature of which implies an appeal to a vast majority?"

"In the other arts, particularly fiction, the smaller audiences can find material to their tastes, but until the moving pictures develop producers actuated at least occasionally by other incentives than monetary ones, we silly few will have to be content with the written word.

"Now, while I am looking down my patrician nose at these terrible films, out of which about once a week, I get thirty-five cents worth of disgruntled horror, I would like to make a suggestion. It is made sincerely, in the fond hope that somewhere a bright producer might 'took a chance' and be congratulated as the originator of a new 'form' in the cinema.

"Fiction has its short-story. Painting has its miniatures. Sculpturing has its statuettes. But the brief movie is limited to travelogues, educational films, animated cartoons, and the farce-comedy. However, in the classics and in every magazine of today, there are really gripping short-stories very much worth translating into pictures that move. Why the producers insist on expanding genuine one-situation material over feature requirements, with a consequent dilution sad to behold, passes understanding.

"Some day, somehow, perhaps in Europe, a genius is going to see the possibilities of the short dramatic story, and the movies will come into their own. Not since Neilan made that picture of three (or was it four) short tales, and bunched them under one title, has the idea been tried.

"The moving picture theater is getting to be more and more like a magazine every day. The fare is varied enough to meet all tastes, except this minority of whom I speak. When the screen-short-story comes, this writer will even sit gladly for five reels of Garbo Grins (comparable to the Complete Novel) for that little short yarn."

## CINEMA AND TEACHING OF THE ARTS

(Continued from Page 3)

one more reason for registering their endeavors and struggles with material.

We are not much inclined to believe that works of art are created with the direct co-operation of the Holy Spirit, and that once the inspiration is there the work of art reveals itself. We want to see the hands at work.

(3) Films of this kind will be useful for the historians of art. They will likewise have their uses in schools where painting and sculpture is taught. But on general lines, the motion picture as a process which analyzes movement and represents movement ought and must have its place in schools of Fine Arts.

The work of art is a thing among the movements of life, but we ought to know all these movements or at least a great many of them. Is it not an admirable thing that the study of form is subject to a kind of century-old convention which treats the living model like clay? The lines which life makes with the bodies of men are extremely marvelous as are those which life

reveals to us in the bodies of the animals.

I have always thought it a pity that the Fine Art schools have remained so exclusively "human," and that since the times of the Renaissance little attention has been given to other phases of life. The Renaissance in any case, was more liberal and freer than the Middle Ages of which it was perhaps only a later arrested phase (all these words are merely tentative). The Renaissance was interested in plants, animals, etc.

We all know how the spectacle of life can arouse in the young man who is studying form an appreciation of its movements not as a mere passing lesson, but as a source of unknown, unstudied phases of equilibrium.

The slow motion projection of a horse in movement or a swimmer brings out solemn and wonderful arabesques of motion. In this way, the mobility of appearances may attain the immobility of works of art which should be a fixed and definite sign, full of what has been long prepared and studied.



**MAX FACTOR'S**  
NEW  
*Satin Smooth*  
**LIQUID FOUNDATION**  
A REVELATION IN FACIAL MAKE-UP



# *In eight of* “1934’s BEST TEN”

---

OF the ten pictures chosen as 1934’s best in the *Film Daily’s* nationwide poll, eight were photographed on Eastman Super-Sensitive Panchromatic Negative. Again this Eastman film has made its contribution to the artistry and entertainment value of the productions adjudged the finest of the year. Eastman Kodak Company, Rochester, N.Y. (J. E. Brulatour, Inc., Distributors, New York, Chicago, Hollywood.)

---

EASTMAN *Super-Sensitive*  
*Panchromatic Negative*


## S. M. P. E.

AMERICAN STANDARDS ASSOCIATION TO WORK ON STANDARDS FOR MOTION PICTURE APPARATUS

The Society of Motion Picture Engineers has been named sponsor of a sectional committee now being organized by the American Standards Association to work on standards for motion picture apparatus. Regarding this work, the following article appeared in the January issue of Industrial Standardization, published by the American Standards Association:

"A sectional committee is now being organized to work on standards for motion picture apparatus, the Society of Motion Picture Engineers having been named sponsor of the committee. The scope of the work has been defined as 'Terminology, Dimensional Standards, Methods of Test and Rating, and Performance characteristics of the materials and devices used in sound motion picture photography, and in sound recording, processing, and reproduction in connection therewith.' The organizations which are being invited to name representatives on the committee include technical or engineering societies interested in motion pictures, electricity, radio, acoustics, fire protection, lighting, and optical science, manufacturers and distributors of kodaks, films and other equipment, motion picture theatre owners, exhibitors, producers and distributors, and U. S. Government departments."

The 1935 Spring Convention of the S. M. P. E. will meet in Hollywood, May 20 to 24 inclusive. The program will appear in *The International Photographer* for March.




Ballet Russe "Union Pacific". Actual performance photo by Lester-Pickett, LEICA SUMMAR 1:2, 1/40th sec.

**Leica**  
REG. U. S. PAT. OFF.

**Night or Day  
Indoors or Outdoors  
Still Life or Action  
Close Up or Distance**

**WHATEVER THE  
PURPOSE OR  
CONDITION  
LEICA IS THE  
UNIVERSAL  
CAMERA  
TO USE**



## THE AUTOFOCAL CAMERA

U. S. PAT. NO. 1,960,044

Price \$99.00 Up

Free Booklet From

E. LEITZ, Inc., Dept. 648 60 East 10th St., New York

## RAPID WINDER FOR LEICA

The Leica camera has always been noted for its speed in making successive exposures. E. Leitz, Inc., 60 East 10th Street, New York City, announces an interesting device which permits even greater speed when making a series of photographs in rapid succession. The new device is known as the Rapid Winder, and consists of a polished metal cap which fits over the winding knob of the Leica.

By means of a thin, flexible steel cable which terminates at a metal ring which is slipped over the finger, the shutter and film are adjusted for the next exposure by pulling on the ring. This action rotates the winding knob of the camera. When completely wound, the steel cable is permitted to slide back into the cap where, by a spring action, it coils, ready for the next exposure.

In short, exposures can be made with the Leica and this new Rapid Winder as quickly as the finger can pull the ring—one straight movement, outward, and the camera is ready for the next picture. Only a fraction of a second is needed with this device to set the camera.

The possibilities of the Rapid Winder are unlimited. News, sport, candid, and serial photographers will be especially benefited by it. As it is attached and detached to the Leica Camera with ease, it can be left on the camera or, if the owner desires, can be attached and used only on certain occasions where it is particularly indicated by the work at hand.

Why not see the new Leica Rapid Winder at your local dealer, or better still, write direct to E. Leitz, Inc., requesting a copy of their circular 1232 which describes this device? The price is only \$9.60.



# Bell & Howell Announces An Innovation In 16MM. Projectors Model-129

A decided innovation in 16 mm. movie projectors is Filmo Model 129, just announced by Bell & Howell.

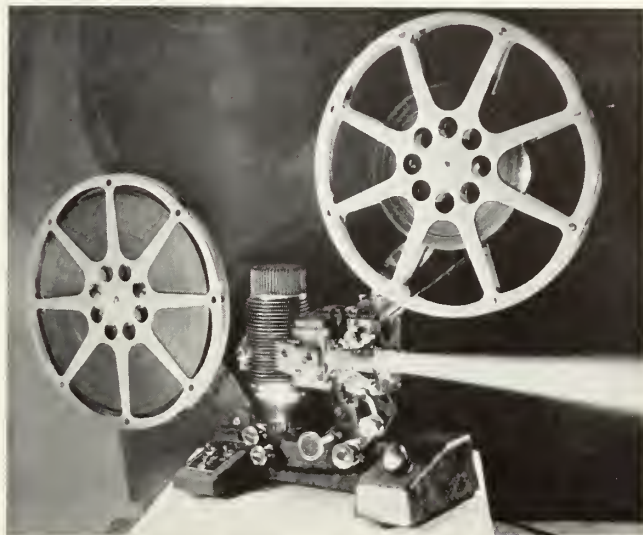
This model is entirely different in appearance from any other movie projector. It has a low center of gravity, achieved by a low "streamlined" base, and a new "fore and aft" placing of the reels—a very desirable feature, especially in view of the fact that the projector accommodates 1600-foot reels which permit a one-hour program without a stop for rethreading.

A 750-watt lamp, with the high efficiency optical system of this projector, provides ample illumination for all occasions except where the maximum possible screen size and brilliance are required, in which case the new 16 mm. 1000-watt Filmo Auditorium projector is recommended. For use in the home, school, church, and in halls and auditoriums of moderate size, Model 129 is ideal. Brilliant pictures up to 12 feet wide, or even larger, can readily be projected.

This projector comes in two types—one being a non-resistance type, using a Cooke 2-inch lens and a 750-watt lamp operating directly from the line current; the other having a variable resistance unit and voltmeter used in connection with a 100-volt 750-watt lamp. This type employs the extremely fast 2-inch f:1.65 lens, increasing still further its effective illumination.

As has been the case with many previous Filmo projector models, efficient lamp economy is achieved by suiting the illumination to the need. In the no-resistance type, the 750-watt lamp may be replaced, when less illumination is desired, by a 300-, 400-, or 500-watt line voltage lamp. In the variable resistance type illumination may be reduced and lamp life prolonged by setting the resistance lever to give the lamp less than the normal 100-volt load. Or a 400- or 500-watt lamp may be used.

The feature of lens interchangeability, which has al-



ways been enjoyed by all Filmo projectors, is, of course, to be found in the 129. The lens which is standard equipment with this model may be replaced instantly with any one of a full range of extra lenses to meet special requirements—from the wide-angle 0.64-inch for close quarters to the 4-inch for long throws.

Among other fine features of the Filmo 129 are a two-way gear-operated tilt, manual framer, fast power rewind, convenient pilot lamp, adequate cooling system, provision for still projection, reverse switch, and take-up snubber to prevent film breakage.

The basic time-proved features of Filmo projector construction assure a life-time of reliable, carefree operation.

The price is unusually moderate.

## ROY DAVIDGE FILM LABORATORIES

...

An Exclusive "Daily" Laboratory

...

Quality and Service

6701-6715 SANTA MONICA BOULEVARD

GRanite 3108

# COLOR CINEMATOGRAPHY

*Lo! The Director of Color Photography Is Coming up the Hatchway!*

By H. O. STECHAN



1—The Farnsworth cathode-ray television "camera" (laboratory model); the inventor, Philo T. Farnsworth. 2—Inventor Farnsworth at the monitor and control-board (right), on location, with a television unit. Note the position of the "cameraman" (left). 3—William Langton Prager. (Photo by Frank Roshnell)

**T**HE chief trouble with color on the screen, to date," says William Langton Prager, Hollywood cameraman and producer, "is mostly due to the infringements." But he said it with the Virginian's classic warning to Trampas in mind—with a smile.

And that is how it all started: this general discussion—the substance of which follows—of color and color processes, as they relate to cinematography, from a practical point of view. Now, since "Bill" Prager has undoubtedly produced and photographed more color "shorts," employing more different color systems, than any other one man in the industry, his thoughts on the subject, as well as a brief review of his experiences in this rapidly developing and highly controversial field, should be of general interest to the camera-craft.

Then, in a more serious vein, Mr. Prager cursorily summarized efforts of the past to bring color to the screen, which would meet with approval of audiences in general, yet hold the cost to a level to enable the producer to compete with black-and-white releases; for, with but rare exceptions, theatre-bookers had consistently refused to pay more for color-subjects than for conventional duo-tone productions, on the ground that they did not add perceptibly to the box office.

"But today, matters have changed considerably for the producer of color subjects," Prager declares. "The goose that laid the golden egg prior to 1929 and 'passed on,' now has a brood of fledglings waddling around, whose paternity one should not question too closely, unless he is particular as to the validity of the patents upon which they base their claim for legal existence, as individually sound and separate systems for placing rainbows over the screen of a colorful tomorrow."

And so, we now find ourselves confronted with a situation, according to Mr. Prager, parallel to that which the motion picture industry had to face with the coming of sound, in respect to the "mushrooming," almost overnight, of hundreds of so-called "systems" for putting sound and speech into practically all of the theatres of moviedom.

"Just as the producer and exhibitor had to take it on the chin, so to speak," Mr. Prager continued, "until a bona fide, standard method of reproduction had survived the confusion and muddle, so now again the industry will have to meet the problem of selecting a color system, which will hold up in the face of a legal barrage, as well as the high-intensity arcs of the exhibitor. As for the latter, the die has been cast. Mr. Exhibitor flatly refuses to project any color system that employs some form of 'gadget,' to be attached to his projectors or house 'nut.' That means that 'additive' color is definitely out of the theatre, and that 'subtractive' or prints where the color is carried in the film-emulsion, must be accepted.

"Then there is the question as to whether it shall be a two or a three color system. You will note that I am using the phrase 'color system' instead of 'color process' to avoid the confusion of fact; for all color systems are not color processes. The first may only concern the actual taking of the color image—where the latter concerns the laboratory conversion of color values, as impressed upon the negative, in degrees of color-filtered black-and-white images to color impregnated prints.

"As for the possibility of a two color system being limited in registration of the color spectrum, that is entirely governed by the separation employed for taking the color image, sufficient proof of which is found in a print on my desk, made from the red and green negatives of a frequently used three color process. The result is of as excellent a quality—including yellows and lavenders—as that of the original three color negative print.

"So, where there are a hundred (more or less) so-called color systems, there are only five color-process laboratories operating in Hollywood today; and, with one exception, these laboratories are able to process almost any color negative into subtractive prints, in limited order. Therefore, with the coming of color into general use, it will create a demand for sufficient color laboratory facilities to carry the load.

"But even here, the rapid advancement in color de-



velopment will abate the cry for good color prints—prints which will hold up under projection and be equal in quality to black-and-white prints. Therefore, the present double-emulsion stock is destined to be supplanted shortly by a single super-emulsion stock, with the two or three color images there applied. Thus will much 'projector scratch,' heretofore complained of, be eliminated."

Therefore, as Mr. Prager points out, with producers truthfully informed of the possibilities of a few of the many color systems and processes now striving for recognition, it seems that the solution for color generally adapted to major production lies in the organization of a financial force of sufficient buying-power to purchase and pool, after thorough investigation, such patents as warrant further development into a major color-organization of unquestionable patent-structure.

"As to the future of color cinematography, many things may be predicted," Mr. Prager continued, "as Ray Fernstrom did, in one instance, in the January, 1934, issue of THE INTERNATIONAL PHOTOGRAPHER, in which he said that the color newsreel is inevitable. Two world-records were established this last New Year's Day, when a combination of Hearst Metrotone News and the Dunning Process Laboratories placed a color 'news clip' upon the screens of fifteen theatres throughout Southern California, of the Pasadena Tournament of Roses parade, within six and one-half hours. This was a 'scoop' for color, regardless of the quality of the first prints which were later—the same evening—supplanted by prints of cynex-tested color values. But it all went to prove that color can and will also play an important role in the reproduction of topical news, in the near future.

"Then, there is the future of the color cameraman, both directorial and operative. In my opinion, the former must be born color-conscious and be able to see at a glance each and every rendition of the color-spectrum to be employed. Of the latter, operative cameramen can be trained.

"All the abuses of color in former years will be avoided, when the director of color photography is placed on a par with the producing director on the picture assignment, with consideration for his fitness to interpret chromatically the problem at hand.

"As I see it, with his technical knowledge, the director of color photography is going to be the 'king pin' of production in the future; for, with the coming of television—and it is coming, just as sure as fate—the cameraman who, in the past, has often shouldered the added tasks of radio operator and even navigator on many a film-expedition, must likewise be equipped to meet the coming requirements for taking 'film transcriptions' for television broadcasts, as well as shooting 'direct pick-ups.' And in the taking of both, color will play an important role, acting as the 'catalytic agent' in the creation of stereoscopic screen images.

"Thus, are we making color test films for 'transcription projection,' in connection with overcoming the green light ray, emanating from the 'cold cathode-ray' tube of the Farnsworth television equipment, and giving a natural colored image, photographed and transmitted at the standard rate of 24 pictures per second. This will add much to the value of television broadcast; and, although David Sarnoff, president of R. C. A., advised radio dealers last November to be prepared for the advent of television the beginning of the current year, it will be a little longer before the studio cameraman need worry about his presently secure (?) position. But, at the same time, my advice to him is to be prepared then to come into his own; or there are going to be many new faces seen behind the cameras of the future, as the coming of color into general use is sure to bring in front of the same cameras. It will be a repetition in reverse of what happened, not so long ago, when the screen became articulated."

William Langton Prager, who contributes these interesting observations to THE INTERNATIONAL PHOTOGRAPHER, on what seems to him to be "just around the corner" for the camera-craft, is a Hollywoodian and has grown up in the industry. On getting his high school sheepskin in 1916, he set out to learn the picture business at Universal, during the H. O. Davis regime. Since then he has worked in every department of production, so that it may be said he knows it "from the ground up." To his credit stands putting the first wireless into pictures, which was in the International serial, "Patria," starring Irene Castle.


"Bill" Prager did his bit in the World War, by joining up with the 17th Company of the Coast Artillery Corps, which consisted 90 per cent of motion picture men. During his two years overseas, he put in the radio system between Chaumont and Rotterdam, Holland, for General Headquarters, among other important assignments. That "Bill" Prager was color-conscious early in his career is evidenced by the fact that in 1918 he photographed the Armistice Celebration in Paris for Pathe Freres—in color.

Since then, on returning to Hollywood, he has turned on the camera-staff of many productions, at various major studios, notable lately: "Broadway Through a Keyhole" and "The Bowery," for Twentieth Century. In between times, he has produced a series of independent color "shorts," on his own, among them being "Rodeo," "Street of Memory" and "Fiesta."

In the course of this experience, Mr. Prager has perfected his own color system, using "super-pan" film at the same footage and speed as for "black and white." In so doing, he has never lost sight of the fact that, first and foremost, color cinematography must be commercial, if it is to make its way and come into general use. No matter how beautiful and artistic the results of a process, there is no big future for it unless it is eminently practical for both producer and exhibitor. And there is this further essential: It must not add too much to the cost of production; for, in the last analysis, there is a limit to the box office strain. He has kept these salient facts in mind through all his experiments and proved that they can be met satisfactorily.

In conclusion, Mr. Prager asked the privilege of this postscript: "Color on the screen is too big a subject to exhaust in any one magazine article, since many books are being written on it. But if the few rambling thoughts herein recorded seem valuable, I will be glad to make a more thorough analysis of all color systems hereabouts and contribute a detailed report on them, for future issues of THE INTERNATIONAL PHOTOGRAPHER. That is, of course, by courtesy of The Editor."


[The Editor herewith invites Mr. Prager to follow up his color story in March issue; so look out for another interesting yarn.—Editor's Note.]

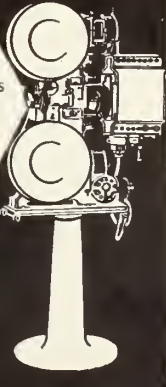


**EVERYTHING  
PHOTOGRAPHIC**  
for Professional and Amateur

New and used. Bought, sold  
rented and repaired. Designers  
and manufacturers of the  
H.C.E. Combination Lens  
Shade and Filter Holder  
for any size lens.  
Send for foreign catalogue

**Hollywood Camera  
Exchange**  
1600 Cahuenga Blvd.  
Hollywood  
Tel.: HO-3651  
Cable:  
HOCAMEX







# STAGE PHOTOGRAPHY

By KARL A. BARLEBEN, JR., F.R.P.S.

**T**HE publication of a number of actual stage photographs in various magazines during the past few years has had its effect upon numerous amateur photographers. "How can I make such pictures?" "I've tried such pictures but had no luck," and similar exclamations are often heard. Certainly it is an interesting phase of photography, and one which is easy enough, providing suitable equipment is available.

What is suitable equipment? Well, there is no doubt that the small miniature camera makes the most practical outfit for this work. One might go so far as to say that it is the only type of camera for use, for the clumsiness of a larger camera in the theatre can well be imagined. Aside from size, the small cameras are usually equipped with fast lenses, a most important adjunct in stage photography. So let us say that a miniature camera equipped with as fast a lens as can be secured—either owned or borrowed—should be considered standard equipment. While lenses with a speed of  $f:3.5$  can be used, it is obviously advantageous to use a faster lens if one is available. For example, most stage photographers use lenses with speed of  $f:2$ ,  $f:1.9$ , and  $f:1.5$ .

The next consideration is the film. Here again speed is demanded. Only the supersensitive types of panchromatic film should be considered. Indeed, some workers use hypersensitized film—film which has been subjected to special treatment which considerably increases its initial speed. Such film is ordered from the various film manufacturers direct. It is plainly a specialist's film, for it must be used within a short time of manufacture, and is best kept in the refrigerator until used.

The photographer has no choice in the matter. Panchromatic film is definitely indicated for stage work because the illumination is mainly of the tungsten variety. Sometimes white-flame carbon arcs are used, as in strong spotlights, but the "foots" and proscenium strips are always composed of Mazda lamps. Panchromatic film is of course far more sensitive to the tungsten light than orthochromatic, hence, it is the only logical choice.

While on the subject of film, it might be well to dwell for a moment on the illumination. The photographer must naturally depend a great deal upon judgment, for exposure meter readings are hardly possible during a performance. The rule is, then, to give all there is to give in the way of exposure. Of course circumstances will vary, but in general this rule will not be far from wrong. Colored lights are to be avoided, for they are nothing but light sources which have been filtered by sheets of colored gelatine. A stage illuminated, for example, by amber or blue light makes a poor bet for photography, for the light has been filtered so utterly that even a trace of an exposure on the negative is hardly to be expected. Here again, however, conditions will differ, and where the light is sufficiently intense, an exposure can of course be obtained. The most ideal conditions, however, are those where the illumination is white light.

By far the best way to secure stage pictures is to ask permission from the management. Sometimes this

cannot be done, and then it becomes merely a matter of taking your chance as a member of the audience. This will bring up a question which often confronts the beginner—has he a right to make such pictures if refused permission? He has every right to photograph a public exhibition or presentation either with or without permission. That is to say, no legal action can be taken against him for making such pictures, the subject, in this case a stage presentation, being available to the public, and therefore as free as the wind as far as photographs are concerned. However, it is always the fair thing to get permission to make pictures and thus eliminate any unpleasantness—which certainly can be created.

With permission, it is possible to go back-stage and secure intimate pictures, both on and off stage. Pictures made from these vantage points are often superior in interest to those made from the audience. Then, too, good pictures can often be sold to the management, making it well worth while to go to the trouble involved.

When rehearsals are in order, it becomes very easy to arrange the lighting to best advantage. But when forced to shoot an actual presentation during a performance, all thought of individual adjustment must be banished.

Working in the audience often presents unique problems. For instance, there will usually be someone directly in front of you. How to dodge the head? There will be people in back of you. How to refrain from annoying them by holding the camera to your eyes, necessitating holding the arms slightly outward and thus obstructing their view? How to release the shutter without making a noise loud enough to disturb? These and similar problems present themselves.

One active amateur solved these problems easily and satisfactorily. He merely holds the camera *upside-down*, the view finder close to his eye, the back of the camera resting securely against his forehead. This is a most practical arrangement, for it not only enables the camera lens to clear the heads in front, but also assures perfect steadiness for the camera—and you must know that steadiness plays a mighty important part in stage photography, because slow shutter speeds are the rule rather than the exception.

The silencing of the camera may offer the most vexing difficulties. Compur shutters are quite silent at slow speeds, although their buzz-z-z-z may distract, particularly during a silence. Focal plane shutters usually snap with a little click on the opening and closing. A special leather casing, lined with cork and felt, was once made for a well-known make of miniature camera, but owing to its bulk, was never thought well of and hence, never shown on the market. It was tried out in the motion picture studios in Hollywood, but failed to make the grade as a "blimp" before the critical and sharp-eared microphone. A thin covering of some sort will help materially in deadening the shutter mechanism, and some workers have resorted to wrapping their camera in handkerchiefs as temporary make-shifts. Others, with the idea of greater permanency, have had their wives sew together small felt bags into which the camera is slipped



when ready for theatre use. The matter of silencing is obviously one for the individual to overcome. Some cameras, in fact, require no silencing "blimp" whatever, the slight noise they make being negligible, especially when applause or talking is going on.

Whenever possible, a seat directly in the center, a

the normal lens. For example, the Hektor 73 mm., f:1.9 lens for the Leica and the Sonnar 85 mm., f:2 for the Contax. With such lenses, closeups of the actors and actresses can be obtained which would otherwise be lost with the regular lens. These extra lenses are, naturally, refinements for this work, and are not



Upper Left—Scene from "Ziegfeld Follies." f:2 lens, 1/40th second exposure, DuPont Superior pan Leicaphoto by Lester-Pickett. Upper right—Eddie Cantor at the microphone. f:1.9 lens, DuPont Superior pan film. Leicaphoto by Kip Ross. Lower Left—Scene from "All the King's Horses." Leica photo by Lester-Pickett. Center—Miss Dorothy Hall, star of "The Pure in Heart," in her dressing room preparing for a performance. Leicaphoto by Glen Pickett. Lower Right—Fannie Brice and Willie Howard in "Ziegfeld Follies." f:2 lens, DuPont Superior pan film; Leicaphoto by Lester-Pickett.

few rows from the orchestra pit or stage, should be chosen. With the normal lens, something less than the entire stage can be recorded. If the entire stage is to be photographed, a seat farther to the rear will have to be used. From the loges or boxes, interesting angle shots can be found which will inject novelty into the pictures thus made. Some stage photographers make excellent use of lenses slightly longer in focal length than

absolutely necessary to good results; only desirable when available.

Stage photography has its compensations. It can be the means of making money, or it can add that novelty touch for the amateur whose photographic experiences have run what he thinks is the gamut. The few simple requirements and suggestions mentioned here should enable the beginner to start out with at least fair success.

### "MAN'S BEST FRIEND"

S. S. Krellberg—62 Mins.

*Human Interest Story of Boy and Police Dog Carries Appeal Mainly for Youngsters.*

This is a simple little human interest yarn of a boy in the mountain country who tries to protect his pal, a police dog, from his rather brutal father who takes a grudge against it and endeavors to shoot the animal. The police dog, Lightning, is a highly intelligent animal and well trained. He is seen with his mate roaming the mountainside. Then later the mother is killed defending her young from a bear. Lightning takes charge of the brood, and the boy brings them to his father's farm where he can feed them. The old man tries to drown the pups, the dog rescues them from the lake, and so on to an encounter with the bear at the climax, when the dog proves that he has been a friend and not an

enemy of the farmer by trying to protect his stock from the depredations of the bear. A simple story that holds its main appeal for boys, with most of the action taken up with the police dog and his master, the young man.

Cast: Lightning, Douglas Haig, Frank Brownlee, Mary McLaren, Patricia Chapman.

Director, Edward Kull; Athour, Tom Sawyer Storey; Screenplay, same; Editor, Carl Himm; Cameramen, Ernest Smith, J. Kull, O. F. Himm.

Direction, fair. Photography, good.—*Film Daily*.

All these men constituted as the technical crew of this production are cameramen and members of Local 659.

CINEX TESTING MACHINES

CINEX POLISHING MACHINES

**BARSAM-TOLLAR MECHANICAL WKS.**

7239 Santa Monica Blvd.

Phone GRanite 9707

Hollywood, California



# CINEMACARONI

By ROBERT TOBEY

(With sauce for those who like it.)



## HOLLYWOOD HONEYMOON

A novel novel of a thousand and one nights in a daze.

by  
R. THRITIS.

**The Characters:** Same people. No change. Neither have I.

**Synopsis of preceding chapters:** Perri & the Murgle, press agent for the beautiful but d—; the beautiful star, Lili Liverblossom, is in a fine mess of porridge. He slides down the drain-pipe outside Lili's apartment house; but the drain-pipe stops too soon, and so does Perri. After hanging on the end of the pipe for hours, Perri finally persuades a Bald Eagle, by the name of Willy Nilly, to rescue him; but instead of carrying Perri to the ground, the eagle flies off across the desert with his prey.

However, we will leave Perri to do a little praying himself, and we'll take a look-in at poor Lili, who has been marooned all this time on the mantelpiece, where Perri set her to wait for him.

## CHAPTER IV

### Lovely Lili Leaps for Love

"Now I wonder how I can get down from here," said Lili to herself as she crouched among the empty cans on the mantelpiece. She reached back and fished a slightly dilapidated Bismarck herring from the small can behind her. Munching on this she pondered her next move. Thanks to her foresight, she had enough canned food left on the mantelpiece for several days. She had stacked it there some weeks previously for just such an emergency. But it's no fun eating out of a can for days on end—or for days that aren't on end, for that matter. Besides, she had overheard the conversation, if you can call it that, between Perri and Willy Nilly, and she feared Perri was being carried off to the eagle's lair. This didn't add much to her peace of mind—which was a pretty small piece in the first place, if anyone should ride up on a duck and ask you.

It was at this juncture that Lili said to herself, "I wonder how I can get down from here?" A long silence followed. Lili didn't know what to reply to herself. Her mother had never told her. Perhaps her mother didn't know either. Maybe her mother never told her. Perhaps her mother—now see here, this is no story about the ant that went in and got another grain of wheat.

Just about this time an inspiration came to Lili. Parcel Post C. O. D., from an old friend in Chile, Concarne. After paying the messenger in Mexican pesos of eight, Lili ripped open the package. Inside was a small but practical parachute. Lili said her prayers, held onto her hat, pulled the string, and away she went. She hit a couple of air pockets as she floated past the electric fan, but finally landed safely in the middle of the rug, none the worse for where, she had been.

Her first thought was of Perri. How was she to rescue him? Harking back to her studies in differential calculus, Lili remembered that eagles lived in eeries, but she'd forgotten how to spell it. Lili suddenly remembered that in a corner of the living room behind a beer keg was an unabridged dictionary, just where Perri had tossed it one night when he was cleaning out his pockets. Or when she was. Lili was a little hazy about this. Anyhow she found the dictionary and on looking up "eerie" found it had to do with ghosts.

"The problem, then," said Lili to herself, "is to find a ghost. He'll know all about eeries."

So then Lili looked up "ghost." She found out how to capture a ghost, and Lili was delighted, for here her years of motion picture experience would stand her in good stead.

(Where will Lili find a ghost? And will he be able to lead her to Willy Nilly's eerie? So you can't answer, eh? Then read the fifth installment of "Hollywood Honeymoon," to be written next month, if next month gets here on time.)

Silly Sally thinks a penthouse is a Jewish lunch.

What a valuable little gadget is the lowly comma! This was culled from a Columbia Studio call sheet:

"2 bit heralds bit ladies-in-waiting."

\* \* \*

An eye for an eye.

Reminds me of the old stickaroo they used to pull in the days when I was a nasty little brat in knee-breeches, or whatever I wore. Do you remember this?

"That that is is that that is not is not is not that it it is."

Punctuate that properly, and it makes perfectly good sense. If you can't do it, and the worry keeps you awake nights, write in and the answer will be sent you.

See "La Cucaracha," the RKO-Technicolor novelty short, if you want to get hep to the latest move in pictures. This is the first serious screen effort, except for animated cartoons, in the new Technicolor three-color process. I don't say you will necessarily like or dislike it, but you will certainly be interested.

Technicolor's old process was a two-color one, and necessarily deficient in many portions of the spectrum. This new three-color process is supposed to render all colors accurately, and actually does so when properly handled. In the print I saw of "La Cucaracha" several scenes were badly out of color balance, but in general it was the best color rendition I have yet seen. They still have to conquer muddiness in light colors. Incidentally, with the launching of the three-color cameras, Technicolor has the sad duty of junking about \$150,000.00 worth of now useless two-color camera equipment. If you are of an inventive turn of mind, break into the baby's bank and invent a new color process sometime.

Finis should not be written without a word of praise for Steffi Duna's performance in "La Cucaracha." Engaging, graceful, fiery, she did a notable piece of work—the more notable since it was only her second screen performance. She sang well, she danced well, and she changed in the twinkling of an eye from a sweet supplicant to a sibilant little spitfire to suit the mood of the picture. I hope she is not forgotten when future parts are being handed around at RKO.

Gracie Allen, of Burns and Allen, on location in Arcadia, with the Paramount "Love in Bloom" company, was taken suddenly ill and had to be rushed home, suffering from ptomaine poisoning.

\* \* \*

Probably a bad can of tomatoes for her for lunch.

\* \* \*

But Gracie will be around again in no time. She'll just put George Burns to bed, give the doctor a couple of pills and be as good as new.

It's good to see Esther Ralston staging a comeback, as she does in "Strange Wives." For years Esther was my secret sorrow in the days when they got her into a bathing suit on the slightest provocation (but with very good reason); and then she faded from view. Now she comes up over the horizon once more, and since she still has the same beauty and the same talent, all should be well.

Incidentally, Esther also is among those present in "Call to Arms," the Ben Lyon vehicle which Columbia produced and now has shelved for some unknown reason, with release scheduled indefinitely postponed.

The possibility of currency inflation is worrying a lot of big industries.

\* \* \*

But the picture producers have the problem licked in its cradle. If we have inflation, they'll just produce all their pictures on wide film. And pay out salaries on larger checks.

## POET'S CORNER

Gals which you see on the bowling alley

Are the kind that you'd better not with which get very pally,

Because they are very apt to be Homely,

Lumpy,  
Or muscle bound, even.

THE MACARONI BOWL, by The Shovel Boys (they dish the dirt). \* \* \* Fay Wray bought such a lovely ping-pong table, all made of inlaid wood, that she felt it was too good to leave on the porch. So she had an extra room added to the house, to keep the table in. \* \* \* This department is working on a new type of barometer, or weather forecaster. The dial will be airplane style, and a needle will point to various marks reading HOT, COLD, OFF, ON, NO DICE, and FOR PUBLICITY PURPOSES ONLY. As soon as the first two instruments can be rushed to completion they will be hung on Lupe and Johnny Weissmuller. \* \* \*

At the big Palm Springs Dog Show four hundred hounds turned out and brought their owners. \* \* \* The sun didn't shine all day, but a lot of the stars were out. \* \* \* Stu Erwin and June Collyer were there, with a big English bull for an entry. \* \* \* Buck Jones judged some of the entries. \* \* \* William Janney had a Doberman he was rightly proud of. \* \* \* Jeannette Loff was just looking 'em over. She's especially interested in dogs these days because she's been off hers for so long due to a broken ankle. \* \* \*

The week of Ballet Russes at the Philharmonic Auditorium brought out the elite of the picture colony. Frederic March, Joan Crawford, Franchot Tone, Helen Hayes, Ruth Chatterton, Barbara Kent, Tullio Carminati, and a host of others attended. Norma Shearer, even though shortly to again become a mother, was present in a party of celebrities. \* \* \*

I am a little disconcerted to find that funeral directors are listed in the Los Angeles Business Guide under the sub-heading of FUN.

\* \* \*

Guess after all, it's difference of opinion that makes horse racing.

## KNEECAP REVIEWS

(No space left on my thumb-nails.)

Filmdom's gift to antithesis is Charlotte Henry. On a double bill recently I saw "The Last Gentleman" and "Babes in Toyland." Miss Henry played in both, but I still can scarcely believe the same girl gave both performances. However, let me review both pictures separately and you draw your own conclusions.

\* \* \*

"THE LAST GENTLEMAN," starring Mr. George Arliss, is quite worth your while, if only for the priceless sequence of the "talking picture will and testament." I am beginning to become an Arliss enthusiast, although for a time I shunned him because of his silly insistence on the use of the prefix "MR." He is a grand old actor, and renders a meticulous portrayal of the egocentric but whimsically human Cabot Barr.

I wish I could say nice things of Charlotte Henry. Perhaps I expected too much because of the build-up that was given her. She shows here scarcely ordinary beauty, and little talent. Time may make an actress of her, and meanwhile a little dieting would do her appearance no harm.

The picture suffered from sporadic outcroppings of choppy cutting, but was otherwise smooth flowing.

\* \* \*

"BABES IN TOYLAND" is something for the family. Send the children early—then when the picture is half through, you oldsters go in, take the children's seats, and send THEM home. The Bogeyland sequences would scare the very pants off the little darlings, even though Laurel and Hardy and the Wooden Soldiers triumph in the end.

In a few spots the picture sags a little, as there really isn't basically enough material in the plot to stretch over the frame of a feature length production. But as a whole the film is delightfully fantastic and enthralling, and capably staged and directed by Gus Meins and Charles Rogers.

I'm always an easy mark for Laurel and Hardy, and "BABES IN TOYLAND" doesn't change my opinion of them. In fact there wasn't a bad



performance in the whole picture, except that perhaps the work of some of the soldiers was a little stilted. (Oxcooz, plizz!) Henry Kleinbach was just too distressing as Silas Barnaby. Charlotte Henry, however, attracted my attention most of all of the lesser principals. Here is a child that should go far. She is lovely, desirable, and seemingly has the fundamentals of a real actress. She has a sweet, appealing little face, without saccharinity. Young, and not long in pictures, she yet exhibited no trace of camera-consciousness. Her voice, although untrained, has all the "makin's." In short, she should go far.

There you are. I sound as if I were trying to make a liar out of myself. The only explanation I can see for this apparent paradox

is that, since "BABES IN TOYLAND" was made several months after "THE LAST GENTLEMAN," Miss Henry must have used the intervening months for highly concentrated improvement of her appearance and technique. If so, more power to her!

#### SCREWLEWSE DEPARTMENT

The following gem was sent to Dick Cromwell by an unsung iconoclast in the Middle West:

Dear Mr. Cromwell:

Guess who? It's me. But I forget you don't know me, but I don't know you either so we are even.

Please send me your picture. I don't know what I will do with it but I should like to

have one anyway. I would have sent you mine, but I didn't have one.

You are a pretty good actor but you have your bad points. But everyone can't be perfect.

Aunt Flossie and Uncle Herman and I went to see a show last night but that has nothing to do with you so we will drop it.

Well, be good and keep your shoes on.

Yours,

M. J. F.

P. S.—If this letter makes you angry, disgusted, or impatient you are conceited.

#### FAMOUS FINALES

You'll have to run that auto over the cliff again, boys. The camera was pointing the wrong way.

### I VISIT ART REEVES (Continued from Page 15)

vide reasonably close readings of density make it a very handy auxiliary instrument to have on hand.

I was then taken through several other rooms filled with equipment in all degrees of development from the larval stage of permalloy metal and copper wire for the making of transformers to completed devices of various sorts. Among the many interesting things shown me was a compact incandescent ("inkey") studio light that projected a keen pencil of light intense enough to "burn a hole" through the light from a studio light of normal size equipped with a bulb three times the wattage rating of the bulb in the Reeves light. By the expression "burning a hole" is meant that the spot of light from the small projector was intense enough to show up brilliantly when directed on a section of the wall already illuminated by the beam of the larger light.

Then I was taken into the recording room where the glistening metal panels and cabinets of the Art Reeves Recording Equipment made a fine show. The metal panels of the new type of equipment are all beautifully machined; the equipment has been made more compact, rugged, and simple; and numerous technical improvements have been made in the circuits and in the apparatus itself.

A new microphone head has been developed that will be a boon to users of this recording equipment in countries where the humidity is high; for this new microphone is absolutely unaffected by moisture. Compact portable testing equipment likewise has been designed, as well as improvements in the motor drive system.

Then the pride of the laboratory was demonstrated for me; the new testing and experimental equipment that has recently been completed. Included in the testing equipment are vacuum-tube volt-meters, attenuation-

(Concluded on Page 31)

# STUDIO LIGHTS

of every description

Write for this New BULLETIN

## KLIEGL BROS

UNIVERSAL ELECTRIC STAGE LIGHTING CO., INC.  
321 West 50th Street • New York, N. Y.



## NEW TYPE FLOOD LIGHTS

For Use With Fotofloods  
Extremely Powerful  
Flood or Spot

Come in and see them — or write for details.

## CAMERA SUPPLY CO.

Cable Address  
"CAMERAS"

1515 Cahuenga Blvd.  
Hollywood, Calif.

GLadstone  
2404

RUDDY GERAUS MANAGER

Nite Phone GLadstone 6583

# THE 16MM. SOUND-ON-FILM OUTLOOK\*

By W. B. COOK\*\*



OLDER members of the Society will recall that in the early stages of sound recording it was decided that the former camera and projector standard speed of sixty feet a minute would be inadequate for recording sound, and the standard speed was arbitrarily changed to 90 feet a minute. Even with the greatly extended length of available recording track that resulted, several years of the most intensive research and experimental work were required to achieve uniform results of even passable quality.

To have predicted at that early date that a satisfactory sound track could be properly recorded upon and reproduced from a strip less than one-sixteenth of an inch wide and with a projection speed of only 36 feet per minute, would have seemed a wild hope or an idle dream. But the difficulties to be overcome served as a spur, and some of the cleverest engineers of the research laboratories turned at a comparatively early date to solving the difficult problems involved in producing and reproducing satisfactory 16 mm. sound-film.

During the earlier stages of research and experiment, the publicized results seemed to favor re-recording from 35 mm. to 16 mm. sound tracks as a means of making 16 mm. sound-films, but the Kodak Research Laboratories felt that photographic reproduction by optical printing offered the more promising results. Such has proved to be so, and optical reduction is now the only system employed commercially.

Inasmuch as the decrease of length of the sound-track was 60 per cent, whereas the decrease of width was less than 15 per cent, optical reduction presents rather complicated problems, which have been met by different laboratories in several different ways, with greater or less success. It is not the purpose of this paper to enter into the technical details of sound reproduction, but merely to state that a number of laboratories are now turning out 16 mm. sound prints from 35 mm. negatives of a quality distinctly superior to that of 35 mm. theatrical pictures at the corresponding stage of development. It should be remembered that dimensions of the photographic image of a 9000-cycle recording on 16 mm. film (which is easily attainable by optical reduction) would be about the same as those of a 22,000-cycle recording on 35 mm. film, if such a frequency could be audibly produced and recorded.

At this point, it may be in order to point out the efforts being made by European countries, particularly Germany, to adopt a standard of 16 mm. sound-film that shall have the same dimensions and relations of the picture image and the sound track as those adopted by this Society, but exactly reversed as to the projection position of the emulsion surface and the perforations. In the standard adopted by the Society of Motion Picture Engineers, when the film is threaded in a projector the perforations are at the right edge of the film (looking toward the screen), and the emulsion surface is toward the screen. In the standard advocated by European societies, the perforations are at the left edge of the film (facing the screen), and the emulsion surface is adjacent to the light and the condenser lens. The complication is clearly recognized by at least one European manufacturer, who advertises that he will supply either right-hand or left-hand sprockets as required.

Considering the development of sound-film projectors,

it is gratifying to observe the progressive spirit that has inspired manufacturers in the field. All the leading manufacturers of 16 mm. silent projectors have already produced or are now working on sound projectors also. The RCA Victor Company has been the real pioneer in manufacturing 16 mm. sound-film projectors, and is already exploiting its third model. Thus a comparatively wide choice of projection equipment of varying capacity and price range is available. Most of the sound projectors are adapted to both 400- and 1600-foot reels, the latter permitting a program of eight full reels to be projected, with a single interruption for rewinding. As many theatrical features are only six or seven reels in actual footage, it becomes practicable to precede the feature by one or two shorts and yet have the entire program on two large reels.

A decidedly interesting recent development for the amateur has been a portable and compact 16 mm. sound-film camera, with which the amateur can make his motion pictures with a sound-record of the operator's voice. Accessories for recording the voice and sound effects made by the subjects photographed are available at additional expense, but are for the present rather heavy and bulky. With further research and competitive manufacture and production, however, it is reasonable to expect that the amateur sound-and-picture camera will soon become practicable and popular.

Until recently, the sale and distribution of sound projectors have been hampered principally by the lack of an adequate supply of available sound-film entertainment subjects. Happily, this shortage is now being very rapidly remedied, and perhaps the most outstanding development in the new field has been the astonishing increase in the available supply of sound-film subjects during the past few months.

The beginning of 1934, the available supply of 16 mm. sound-film entertainment subjects was perhaps less than 50 reels. At the present time at least ten times that number are actually circulating in the various libraries of the country. Sound-film service is available from coast to coast, and it is no exaggeration to say that several thousands of reels of additional subjects are now available for reproduction in 16 mm. size and will be in circulation just as quickly as the distribution of equipment arouses even a moderate demand for such a supply.

Most of the 16 mm. sound-film projection equipment thus far sold has been for industrial purposes; that is, for use by prominent manufacturers in showing their own commercial pictures, made to carry publicity or make sales for the products featured. Recently a decided interest in equipment has developed among institutions that desire to use sound films but could not do so until the fire hazard and expense of 35 mm. prints and projectors had been replaced by the safety, simplicity, economy, and portability of their 16 mm. successors.

In the days of the silent picture, non-theatrical exhibitions lacked the charm and emotional appeal furnished by the orchestral accompaniment so cleverly cued to the picture in all the best theatres; but with the advent of the 16 mm. sound-film, the family in the home, the children in the church, their parents at the club, or the shut-ins in the hospitals or institutions could for the first time enjoy every illusion of reality, previously enjoyed only by the spectator in the theatre. The emotional appeal of combined sound and speech was beyond description and for the first time there was available a

\* Presented at the Fall, 1934, Meeting at New York, N. Y.

\*\* Kodescope Libraries, New York, N. Y.



means of entertainment challenging the radio in its universal applications.

What of the future of 16 mm. sound-film? As a matter of fact, its future has already been firmly assured. Its present status is far ahead of that of the 35 mm. at a corresponding stage of development. Whereas the 35 mm. sound-film had to start from nothing, and an entirely new art, science, and manufactured product had to be developed, 16 mm. sound has but to follow closely in the footsteps already carved by its older and bigger brother. It should never seek to compete in the professional amusement field, but will doubtless completely encompass the entire non-theatrical field.

As any 35 mm. negative is capable of making 16 mm. reduction prints of quality comparable with their size, it is evident that any great film epic can be made

available if the demand should justify it. Many of the greatest silent pictures were reproduced on 16 mm. film, and it is already evident that the 16 mm. sound-film will enjoy a popularity never imagined in the silent field.

But future progress will be dependent upon the equipment manufacturers. The film reproduction problems are solved. Projectors must be perfected to such a state that no skill is required and adjustments shall seldom be necessary; made so simple that any member of the family or any school boy can operate them successfully; so silent and unobtrusive as to become a piece of household furniture, like the phonograph or radio. The present frequency response must be broadened so as to achieve sound reproduction on a par, at least, with that now attained in the average theatre. And, perhaps most important of all, ultimate success will depend upon the cost of the equipment and its film service.

First Vice-President Roy Klaffki, of Local 659, has an eagle's nest away up in the Sierras that can be reached only by plane. It's a wonderful place, with plenty of wood and water and garden land and maybe some colors in the pan. Who knows?

Len Powers has been keeping his cinematographic hand in by shooting some stuff for the Theatrical Unit of the S.E.R.A.

"Sharazade," Fred Archer's beautiful exhibit at the Royal Photographic Society of Great Britain, London, will appear in an early edition of *The International Photographer*. Mr. Archer will lecture again this year at Will Connell's Art Center School of Photography.

Art Marion, famous fabricator of stills, is a new member of the Board of Executives of Local 659.

Hal Mohr and bride, the lovely Miss Venable, have returned from their honeymoon to resume studio work.

J. O. Taylor is giving his entire time to special process work.

Al Rockett, one of the finest and most efficient producers, has purchased his contract from Fox to engage in production for himself. He plans to be back in the harness within the next six months and in the meantime is touring the Orient with Mrs. Rockett.

## The Mechanical Needs of the Industry

### Manufacturing Motion Picture Equipment

Developing Machines

Laboratory Equipment

General Machine and Engineering Work

Under Water Camera Equipment

Special Projection Equipment

Synchronizing Devices

Optical Printers

Camera Booms

Miniatures

"Props"

# H. W. HOUSTON CO.

1041 NO. SYCAMORE AVE., HOLLYWOOD, CALIF.

HEmpstead 6732

# INTERNATIONAL CLASSIFIED ADVERTISING

Brings results—Rates 45 cents per line—minimum charge one dollar per insertion. For Rent—For Sale—Wanted—For Exchange, etc.

## FOR SALE AND RENT—CAMERAS

**FOR SALE OR RENT**—Mitchell and Bell & Howell silenced cameras, follow focus. Pan lenses, free head, corrected new aperture. Akeley, De Brie, Pathe, Universal, Prevost, Willart, De Vry, Eyemo, Sept, Leica. Motors, printers lighting equipment. Also every variety of 16 mm. and still cameras and projectors. B & H Cameras with old type shuttles silenced \$150. Everything photographic bought, sold, rented and repaired. Send for our bargain catalogue. Hollywood Camera Exchange, 1600 Cahuenga Blvd. Phone HO. 3651. Cable, Hocamex.

**BELL & HOWELL** Professional Motion Picture Camera complete with 35—40—50—75 mm. lenses and Mitchell tripod legs. Also Akeley Camera complete with 2 in., 6 in., 17 in. lenses. Mervyn Freeman, 1960 South Vermont Ave., Los Angeles, Calif. Phone: REpublic 3171.

**AKELEY CAMERA**, excellent condition. 2 and 6-inch lens, 5 magazines, tripod and carrying cases. Joe Marquette, 6058 Sunset Boulevard, Hollywood. Phone HEmpstead 1323.

## FOR SALE—CAMERAS AND EQUIPMENT

**REAL BARGAINS** in 16 and 35 mm. movie equipment and still cameras. Newest types cameras and projectors in all popular makes. Save money on film, lights, lenses and all essential accessories. Our 36 years of experience stands back of every sale. Before you buy, send for our new bargain booklet. Burke & James, Inc., 223 W. Madison St., Chicago.

**BELL & HOWELL—MITCHELL—EYEMO** Cameras, lenses, magazines, tripods, moviolas, splicers, rewinds. All kinds of sound and laboratory equipment. Inquiries invited. CONTINENTAL FILM CRAFT, 1611 Cosmo St., Hollywood, Calif. Cable address "Tomwhite."

**GENUINE BELL & HOWELL** 1000 foot magazines, A-1 condition, \$50 each Continental Filmcraft, Inc., 1611 Cosmo St.

**EASTMAN AND DUPONT** short end negative, spliced, tested and guaranteed or money refunded, 2½¢ per foot, Eyemo rolls on spools, \$2.75. Inquiries invited. Continental Filmcraft, Inc., 1611 Cosmo St.

**HUGHES MULTICOLOR PRINTER** for color, lavender, process, optical and reduction. We also build to order any kind of optical, reduction or steps printers. Inquiries invited. Continental Filmcraft, Inc., 1611 Cosmo St.

**DE BRIE**—Parvo "E" metal case, Tripod, 5 magazines, cases; special \$275. Eyemo B turret Sound Speed 47mm. F2.5 Cooke—50 mm. F1.9 Dalmeyer—334-inch F3.3 Cooke, new condition, \$225. Single lens models, \$85 up. Also DeVry's—Lenses, Projectors, etc. Newman's Camera Exchange, 1192 Sixth Avenue, New York City.

**DUPLEX PRINTER**, Mitchell 400 foot magazines, Mitchell tripod legs; Mitchell pan and tilthead; Mitchell motor adapter; No. 5 stand 60 inch flexible shaft; B. & H. tripod adapter block; ¾ inch F:2. Cooke Kinic lens; 6 inch Busch F2:5 lens and other miscellaneous equipment. Ed Estabrook, 430 North Flores St., Hollywood. OR. 5003.

**LIKE NEW**, Mitchell Camera, silenced Academy aperture, Pan Tachar lenses, free head tripod, 1000 ft. magazines, complete \$2000.00. Hollywood Camera Exchange, 1600 N. Cahuenga Blvd., Hollywood, California.

**LIKE NEW**, Educational Camera Blimp, geared free head, follow focus device and three-wheel dolly. Cost \$1250.00. Our special \$500.00. Hollywood Camera Exchange, 1600 N. Cahuenga Blvd., Hollywood, Calif.

**AKELEY CAMERA**, 32 mm., 40 mm., 50 mm., 75 mm., 100 mm., 6", 12½" lenses, 12 magazines, motor, adapter, Tripod and cases \$500.00. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

**LIKE NEW SOUND MOVIOLA**, Model UC, Price \$450; also new H. C. E. Freehead Tripod and legs for Bell & Howell, Eyemo or DeVry cameras—\$75 complete. Hollywood Camera Exchange, 1600 North Cahuenga Blvd., Hollywood.

**LIKE NEW ARTREEVES** portable double sound recording outfit, with BELL & HOWELL silenced camera, complete in every detail. A real bargain, price \$3500.00. Price without camera, \$2500.00. Hollywood Camera Exchange, 1600 N. Cahuenga Blvd., Cable Address, HOCAMEX.

**MITCHELL CAMERA**, very quiet steel gears, 3 Pan Tachar lenses, Free head, complete studio equipment, excellent condition, \$1450. CAMERA SUPPLY CO., LTD., 1515 North Cahuenga Blvd., Hollywood.

**BELL & HOWELL CAMERA HEAD**, 170 degrees, three lenses, B & H tripod legs and head, beautiful condition. \$700. CAMERA SUPPLY COMPANY, LTD., 1515 N. Cahuenga Blvd., Hollywood.

**ART REEVES**, latest model 1935, double system sound recording installation, factory guaranteed, Automatic Speed Control Motor, Twin Fidelity Optical Unit, Bomb microphone, the only genuine, modern, workable ArtReeves equipment for sale in Hollywood outside factory. Price, complete in every detail, \$2,400. CAMERA SUPPLY COMPANY, LTD., 1515 N. Cahuenga Blvd., Hollywood.

**FOR SALE**—Mitchell tripod friction head—good as new. \$150. Box Z, International Photographer.

## FOR RENT—CAMERAS

**TWO THOROUGHLY** silenced Mitchell cameras. Follow focus device, Pan Astro lenses, Freehead—1000 ft. magazines. J. R. Lockwood, 523 No. Orange St., Glendale. Douglas 3361-W.

## THE INTERNATIONAL PROJECTIONIST

**THE INTERNATIONAL PROJECTIONIST**, a monthly magazine published in the interests of the projectionist. Interesting, instructive. Yearly subscription U. S. and possessions, \$2; foreign countries, \$2.50. James I. Finn Publishing Corp., 1 West 47th St., New York.

## WANTED TO BUY

**MOTION PICTURE—STILL PICTURE**—laboratory and cutting room equipment—lenses—finders—tripods. Highest prices paid. CONTINENTAL FILM CRAFT, 1611 Cosmo St., Hollywood, Calif.

**WANTED**—Mitchell camera silenced. State number and full particulars. Box X, International Photographer.

**MITCHELL OR BELL & HOWELL CAMERA**. State full particulars and lowest cash price. Address Morgan, International Photographer.

## CAMERA REPAIRING

**BELL & HOWELL** cameras with old type shuttles silenced, \$150. Hollywood Motion Picture Equipment Co., 645 No. Martel Ave., Hollywood.

**COMPLETE SET**, except two issues, INTERNATIONAL PHOTOGRAPHER last four years. What am I offered? Box GB, International Photographer.

**VERY POWERFUL FLOODLIGHTS** of new design. Will burn through a 1000 W. Rifle with Cable—\$5.00. With 12 foot collapsible Stand—\$20.00. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

**MITCHELL MOTOR**—1000 ft. Mitchell magazines. J. R. Lockwood, Glendale. Douglas 3361-W.

**FOR SALE**—75 mm. Cooke Lens. F:2 in Mitchell mount complete. 50 and 75 mm. Astro lenses, mounted and unmounted. J. R. Lockwood, 523 North Orange Street, Glendale. Douglas 3361-W.

**BUYERS READ** these classified advertisements as you are now doing. If you have something for sale or exchange—advertise it in these columns. THE INTERNATIONAL PHOTOGRAPHER, 1605 No. Cahuenga Ave., Hollywood.

**FOR RENT**—25 and 35 mm. lenses, motor adapters, Mitchell Standard tripod head, baby tripod, 400 ft. Mitchell magazines. J. R. Lockwood, 523 North Orange St., Glendale, Douglas 3361-W.

## POSITION WANTED

**DO YOU WANT A CAMERAMAN** who is an expert on studio production; or an expedition cameraman who knows every corner of the world; or a cameraman who thoroughly understands the making of industrial pictures; or an expert newsreel photographer; or an expert color cameraman? A limited number of cameramen, backed by years of experience, are available. Write stating your requirements and we shall be glad to assist you in choosing the kind of cameraman you want. INTERNATIONAL PHOTOGRAPHER, 1605 North Cahuenga Ave., Hollywood.

## MISCELLANEOUS

**COMPLETE COURSE IN FLYING**—If interested in aviation, see Roy Klaffki, 1605 North Cahuenga Ave., Hollywood.

**WANTED**—To know of the whereabouts of motion picture relics, documents, or equipment of a historical nature for Museum purposes. Write Earl Theisen, care of International Photographer, 1605 Cahuenga Ave., Hollywood.

The Camera Mart, formerly known as Educational Project-O-Film Company, is now located in new quarters at 1652 Cahuenga Ave., just off the Boulevard. Mr. Meisenzahl will be glad to have you drop in and look over their new home.

**Scheibe's FILTERS**  
In World-Wide Use  
produce Moonlight and Night Effects in Daytime-Fog Scenes-Diffused Focus and many other effects With any Camera - In any Climate  
George H. Scheibe  
ORIGINATOR OF EFFECT FILTERS  
1927 WEST 78TH ST. LOS ANGELES, CAL.



## I VISIT ART REEVES

(Continued from Page 27)

measuring networks, and all of the other apparatus required by a well equipped laboratory.

The beat-frequency oscillator that is used for generating a tone of audio frequency for test work was particularly interesting. It is one of the nicest pieces of equipment of its type the author has ever seen.

Before presenting a brief description of the operation of this instrument, it must be explained that the utmost range of the human ear extends only from twenty to 20,000 cycles per second, although most persons cannot hear sounds above about 15,000 cycles per second. Instead of attempting an explanation of what is meant by these frequencies, it will be said, by way of example, that the deep tone of an ocean liner's whistle is around 100 to 150 cycles per second, while the shrill sing of a mosquito is about 7,000 cycles per second.

A beat-frequency oscillator functions through having two vacuum tube oscillators that each generate a frequency of, let us say, 100,000 cycles per second. One oscillator is adjusted exactly to this frequency; while the other one is variable from perhaps 80,000 to 100,000 cycles per second. The difference, or "beat," between the two frequencies is amplified by a suitable audio-frequency amplifier and fed to a loud speaker, or to the measuring equipment. By adjusting the variable oscillator to the proper frequency, any desired beat frequency within the audible range may be secured.

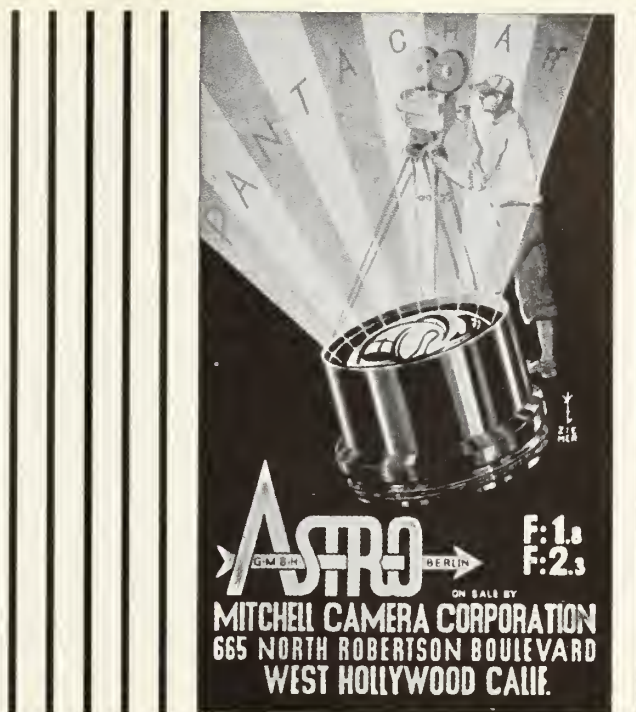
The special virtue of the Art Reeves beat-frequency oscillator is that it can be operated on frequencies as low as one cycle per second without, as is the case with the usual instrument of this type, the fixed oscillator dragging the other one into step with it, which would eliminate any frequency difference between them and so the beat frequency.

The ear will not, as has been explained, respond to frequencies below twenty cycles per second; but it is possible to watch the actual movement of the diaphragm of a dynamic speaker at the extremely low frequencies. The diaphragm makes one complete forward and backward excursion per second; and by timing it with the second hand of a watch, the oscillators may in that way be adjusted to produce a beat frequency of exactly one cycle per second.

I leave it to you whether or not an engineer can have a good time visiting such a laboratory.

Milton M. Moore, pioneer process man, has been devoting his talents to scientific work. Shows what proximity to Cal-Tec will do to a perfectly safe and sane cameraman.

H. Lyman Broening and family have been entertaining Lyman's father, Judge Broening, of Baltimore, during the holidays. The Judge is not sold on California climate.



### SCHEIBE NEWS

"The Lives of a Bengal Lancer," a Paramount feature, used George Scheibe's diffusion screens in all night scenes and most of the day scenes of the picture. Charles Lang was first cinematographer and Robert Pitback operated the camera. The Scheibe filters are now used in every country in the world where motion pictures are produced.

### RECENT PHOTOGRAPH AND SOUND PATENTS

(Continued from Page 14)

1,985,038—Improved Multiple Printer. Jay C. Kroesen of Belleville, N. J.

1,985,344—Method of Producing Multicolor Pho. & Cinematograph Picture. Bela Gaspar, Berlin, Germany.

1,985,460-1,985,461—Motion Picture Screen. Albert Raven of Mt. Vernon, N. Y.

1,985,471—Attachment for Projecting Apparatus (Color Phot.). William M. Thomas of Los Angeles, Calif.

1,985,552—Sound M. P. Projection App. Oscar Ross of New York City.

1,985,584—Sound Recording System. Clifton Skinner of Palo Alto, Calif.

1,985,629—M. P. Projecting App. Ivory Crabtree of Toppenish, Wash.

1,985,730-1,985,731—Color Photography. Herbert E. Ives, assignor to Bell Telephone Labs., Inc.

January 1, 1935

1,986,053—Rewinding App. for Sound Film. Hans Friess of Berlin, Germany.

1,986,054—Method of Copying from Lenticular Screen Films on to Color Material Bela Gaspar of Berlin, Germany.

1,986,107—App. for Dev. Sound Track M. P. Film. Stuart Heisler, assignor to Fred Hotchner of Los Angeles, Calif.

1,986,425—App. for Color Photography. Olindo Ceccarini of Beverly Hills, Calif.

1,986,522—M. P. Camera. Freeman Owens of New York City.

1,986,569—Sound Recording (on film). John G. Frayne, assignor to Electrical Research Products, Inc.

Sol Polito is building a fine big cabin up in the High Sierras, where he will sojourn with his family during the intervals between pictures.

## We'll Pay Cash!

WE WANT IMMEDIATELY

Mitchell  
Akeley

Eyemo  
Bell & Howell

De Brie  
Contax

Leica, and Similar Used Cameras

— Also —

LENSES, MOTORS, PARTS, AND CAMERA  
ACCESSORIES

What Have You To Offer?

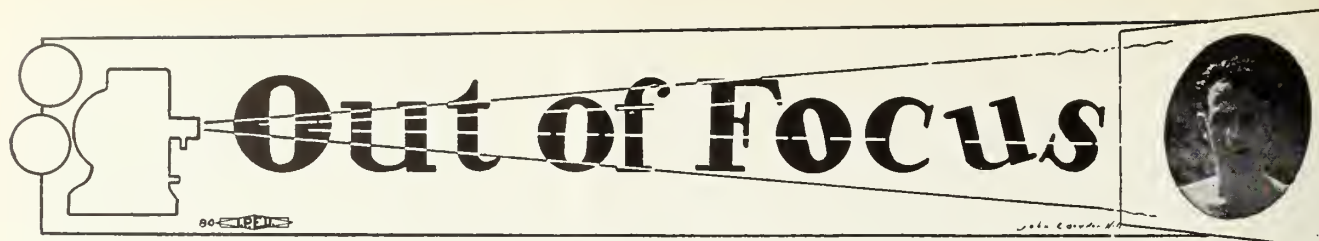
Write or Wire Today

MOTION PICTURE CAMERA SUPPLY, INC.

723 7th Avenue

New York City

Please mention The International Photographer when corresponding with advertisers.



By JOHN LEEZER  
Pinch Hitting for Charles P. Boyle (Otto Phocus)

*Some of the Things That Don't Go on the Film*  
By Mike O'Phone

#### MIKE O'PHONE OF THE O'PHONES

All of the O'Phones are talented;  
Mostly because they are patented.

Tell O'Phone is much the older;  
She's a world talkin' record holder.

Sister Auda was a bit later in appearin',  
But has been a big help to folkses hearin'.

Dict O'Phone sees a lot of shady life,  
Yet never heard of Sherlock's wife.

Neither was Graf much use to Holmes  
But he has entertained in thousands of homes.

There are other O'Phones, too numerous to mention,  
But Mike is the lad who commands our attention.

Sure he's the cleverest of the whole O'Phone Clan.  
He reels out entertainment by the thousand foot can.

He it is who broadcasts world events and the croons  
Jamborees, bed-time stories and all kinds of tunes.

There's a lot tho' that Mike do be hearin'  
That'll never on air or film be appearin'.

Not that it's unlawful nor yet at all wrong  
But simply because it don't belong.

We've forgotten just how we came by the pull,  
But Mike will give us, now an' then, an ear full.

**W**HILE getting a little "shut eye" the other morning down at Bob Tobey's studio, I was awakened by a couple of camera assistants spilling their troubles to each other. One by the name of "Cactus" George says:

"I wanta tell the cockeyed world that us assistants is gettin' the uncooked end of the deal. Me fer instance. I drives down here this mornin' at eight o'clock. I'm not kiddin' ya, it was an eight o'clock call an' if somethin' ain't done about it, they'll be handin' out seven o'clock calls. Well, anyhow what do I find but some bozo parked in my space an' when I puts up a holler the guy in the funny uniform says:

"Bring your car over here, the General Manager won't be here today an' you can use his garage."

"I pays no attention to the Famous Last Words talk an' says, 'Whose heap is that in my stall?'"

"That belongs to one of the directors. What ya gonna do about it?" says the Chocolate Soldier.

"Get him outta there or I'll report ya, says I and it worked. In seventeen minutes by the watch that director had his Chevy out a there an' me an' me Lincoln was where we belonged. But I'm askin' ya. Can ya beat it the way some guys try to hand ya somethin'? But that wasn't all of it. I couldn't find a wagon to haul the junk from the camera room over to the set so I had to pack it on me back. 'At's all right tho', 'cause it happened once before an' to be on the safe side I takes out a card in the Piano Movers' Local. It was nine o'clock by the time I had the outfit set up an' I had a runner in one of me socks a yard long; me new

pair of spring suspenders was out a sink an' me disposition ditto.

"At nine-thirty I'm settin' in the director's chair givin' me nails a manicure when along comes Bill, the big stiff. He's got a lotta crust, tryin' to alibi himself as a First Cameraman. If he's that, then I'm a director. He was tryin' to look through a blue glass an' tell the gaffer where to put three suns an' sixteen orange-peels. But the gaffer says, 'Nix,' so the big bluff says, 'O. K. Amos. Light it like you did the last one an' it'll be jake with me. An' then he sees me.

"What's the big idea? Ya had a eight o'clock call, didn't ya?"

"An' I says: 'Quiet! We're running.'

"Quiet me eye," says he. 'Do it again an' I'll report ya.'

"The director called him before he could pass out any more bull but when he comes back he says to me: 'At's all right, kid. Fergit. I had to say somethin' 'cause the boss is sore this mornin'."

"I'm askin' ya again—can ya beat it? An' they—O. K. Bill, it's practically there."

And the grievance committee adjourned.

"Then I heard the director say: 'Bill, this is the dolly shot I was telling you about yesterday.'

"O. K., says Bill and called Eddie, the champion dolly cameraman of the Coast.

"From here to there an' back again, Eddie," says Bill.

"O. K., says Eddie. Eddie always says O. K. Sometimes they call him O. K. Eddie.

"From here to there," meant that I would be swung around in semi-circle on the end of a boom so that I could listen in on what a fleshy colored lady was supposed to say as she tramped along ahead of the dolly. We tried it once then Eddie squawked:

"Can't keep the right distance all the time," says he.

"Then Bill said: 'O. K. Get a board about six feet long and let it stick out in front of the dolly.'

"While the dolly was following the lady dinge the board kept her at the right distance but when she tried to follow the dolly on the return trip, she bumped her shins against the board which caused the director to say a few things derogatory to cameramen in general.

"O. K., says Bill. 'Get a piece of rope.' The rope was forthcoming and one end attached to the dolly, leaving about six feet to drag on the floor.

"Now," says Bill, 'all ya have to do is walk along at the end of the rope.'

"It looked like it was going to work on that reverse shot until we were about half way across the set. Then the two hundred and fifty pounds of dark meat stepped on the trailing rope. Three husky longshoremen were pulling the dolly and the effect was just the same as if the rope had been attached to a street car. I have seen some wonderful flip-flops in my time but nothing to equal that one.

"Let's forget the dolly shot," suggested the director.

"Amen!" groaned the colored lady, but she never will forget it."



# Here are a few of the tools offers for **BETTER PICTURES**

ARE YOU GETTING THE MOST FROM THEM?



10,000-watt G-96. Used in 36" sun spots and sky pans. Also as a single powerful light source. About 1/14 size.



5,000-watt G-64. Employs the rugged new bipost construction. Used in 24" sun spots and sky pans. About 1/8 size.



New Bipost 2,000-watt G-48. Used in 18" sun spots and studio condenser spot lamps. Also available in 1,000-watt size. About 1/7 size.



1,500 and 1,000-watt PS-52. Used in rifle lamps, side lamps and strip units. Also for floodlighting. About 1/10 size.



Movieflood. 2,000-watt P-S 52. Brings out blacks and blues. Primarily for color work. Used in regular 1,500-watt units. (15 hour life). About 1/10 size.



1,000-watt T-20. Used in "Lupe" lamps, utility lamps and occasionally in practical lighting fixtures. About 1/10 size.



500-watt T-20. Used in baby spots and in practical lighting fixtures. Also in amateur lighting units. About 1/6 size.



No. 20 and No. 75 Photoflash lamps. For special newspaper effects. No. 75 gives more than 3 times the light of the older No. 20. About 1/8 size.



Photoflood lamp No. 1. Has brilliance of ordinary 750-watt lamp. Used in amateur units and in practical lighting units. (2 hour life). About 1/4 size.



New Photoflood lamp No. 4. 1000-watt PS-35. Has about 4 times effectiveness of Photoflood No. 1. Excellent for close-ups. (10 hour life). About 1/7 size.





200-watt T-10. Used in practical lighting fixtures, such as table lamps and floor lamps. About 1/5 size.



Left: 9A. 9.5V. recorder lamp. About 1/6 size. Right 6A. 5V. recorder lamp. About 1/3 size. G-E also makes several other lamps for this work.

THE marvelous, almost phenomenal effects which cinematographers have achieved with lighting are well known.

Working hand in hand with you to help make such results possible, General Electric has made available a great variety of lamps. Are you getting the most use from these lighting tools?

This chart suggests some of the ways in which outstanding cinematographers are putting a few of the many  MAZDA lamps to work for them. In the face of this proven flexibility, is it any wonder that studios from coast to coast use  MAZDA lamps for all lighting needs? Incandescent Lamp Dept., General Electric Co., Nela Park, Cleveland, Ohio.

## GENERAL ELECTRIC



*The*  
**Mitchell Camera Corporation**  
*Takes Pleasure In Announcing the*  
*Establishment of Agencies In*  
*the Following Countries*

•

Claud C. Carter . . . Sidney, AUSTRALIA

John H. Taylor . . . London, ENGLAND

Bombay Radio Co., Ltd. . . Bombay, INDIA

D. Nagase & Co., Ltd. . . Osaka, JAPAN

•

**MITCHELL CAMERA CORPORATION**

665 N. ROBERTSON BOULEVARD  
WEST HOLLYWOOD, CALIF.

Cable Address "MITCAMCO"

Phone OXford 1051



# INTERNATIONAL PHOTOGRAPHER

HOLLYWOOD

VINTH YEAR

MARCH, 1935

VOL. 7  
No. 2



STILL BY EDDIE KULL

A shot of the technical crew of Burroughs-TARZAN Enterprises, Inc. on location in Guatemala. Note the rapid transit arrangements of the Hollywoodens and the beauty of the surrounding country. The figures on top of the arch are real and so is the big ape on the front seat of the ox-cart. The camera is not in sight, but don't worry—they have one.

25 CENTS  
A COPY

MOTION PICTURE ARTS AND CRAFTS

SHOOTING

★ STARS ★

WITH DU PONT NEGATIVE

**DU PONT**

REG. U. S. PAT. OFF

**DU PONT FILM MANUFACTURING CORPORATION**

35 WEST 45TH STREET  
NEW YORK CITY

PLANT . . . PARLIN, N. J.

**SMITH & ALLER LTD.**

6656 . . SANTA MONICA BLVD.  
HOLLYWOOD, CAL.



Photographed  
by  
**WILLIAM  
DANIELS**



Photographed  
by  
**RAY  
JUNE**



Photographed  
by  
**HARRY  
FISCHBECK**

THE  TRADE MARK HAS NEVER BEEN PLACED ON AN INFERIOR PRODUCT



# Shahrazad



FRED ARCHER

"Shahrazad" was one of the outstanding pictures of the last Royal Photographic Society's Invitational Exhibition of representative American photographers.

One hundred and fifty of America's best known photographers were invited to exhibit one print each and "Shahrazad" was the entry of our own Fred Archer, who has for many years been represented in most of the major salons throughout the world.

He is director of Camera Pictorialists of Los Angeles; Honorary Member of Los Angeles Camera Club; Associate Member of Pittsburgh Salon; Honorary Member of the Packrats Club of Pasadena, specialists in desert art; Supervisor of Photographic Department of the New Galleries of the Art Center School, under direction of Will Connell; Lecturer of Art Center School, etc. In the near future there will be an exhibit of pictorial photographs by Mr. Archer at the New Galleries of Art Center School.

# INTERNATIONAL PHOTOGRAPHER

MOTION PICTURE ARTS AND CRAFTS

Vol. 7

HOLLYWOOD, CALIFORNIA, MARCH, 1935

No. 2

SILAS EDGAR SNYDER, *Editor-in-Chief*  
EARL THEISEN and CHARLES FELSTEAD, *Associate Editors*  
LEWIS W. PHYSIOC, FRED WESTERBERG, *Technical Editors*  
JOHN CORYDON HILL, *Art Editor*  
HELEN BOYCE, *Business Manager*

A Monthly Publication Dedicated to the Advancement of Cinematography in All Its Branches; Professional and Amateur; Photography; Laboratory and Processing, Film Editing, Sound Recording, Projection, Pictorialists.

## CONTENTS

FRONTISPIECE, "SHAHRAZAD" - - - - -	1
By Fred Archer	
TELEVISION UP-TO-DATE - - - - -	3
An Interview with Harry R. Lubcke	
THE HOI POLLOI - - - - -	4
By Esselle Parichy	
MOTION PICTURE SOUND RECORDING—CHAPTER XVI -	6
By Charles Felstead	
16 MM. SOUND PICTURES IN COLOR - - - - -	8
By C. N. Batsel and L. T. Sachtleben	
MINIATURE CAMERA PHOTOGRAPHY - - - - -	10 & 11
By Augustus Wolfman	
S. M. P. E. SPRING CONVENTION - - - - -	12 & 13
CINEMACARONI - - - - -	14
By Robert Tobey	
THE CROSENE COLOR PROCESS - - - - -	16 & 17
HOLLYWOOD CAMERAMEN WIN SUCCESS IN THE ORIENT	18
THE AKERS CAMERA IN PRODUCTION - - - - -	22
By Walter Bluemel	
THE LANGUAGE OF THE MOVIES - - - - -	24
By Earl Theisen, Associate Editor	
THE LAND OF THE WINGED SERPENT - - - - -	26
By Nat G. Rothstein	
A VOICE FROM INDIA - - - - -	29
By Guru D. Lal, S. M. P. E.	
CLASSIFIED ADVERTISING - - - - -	30
RECENT PHOTOGRAPHIC AND SOUND PATENTS - - -	31
AN AMERICAN CAMERAMAN IN ENGLISH STUDIOS -	32
By George J. Teague	

Entered as second class matter Sept. 30, 1930, at the Post Office at Los Angeles, California, under the act of March 3, 1879.

Copyright 1934 by Local 659, I. A. T. S. E. and M. P. M. O. of the United States and Canada

Office of publication, 1605 North Cahuenga Avenue, Hollywood, California  
GLadstone 3235

James J. Finn, 1 West 47th St., New York, Eastern Representative  
McGill's, 179 and 218 Elizabeth St., Melbourne, Australian and New Zealand agents.  
Subscription Rates—United States and Canada, \$2 a year. Single copies, 25 cents.

This Magazine represents the entire personnel of photographers now engaged in professional production of motion pictures in the United States and Canada. Thus THE INTERNATIONAL PHOTOGRAPHER becomes the voice of the Entire Craft, covering a field that reaches from coast to coast across North America.

Printed in the U. S. A. at Hollywood, California



# 35MM.

Fred Westerberg's  
Good Little Book

The  
Cinematographer's  
Book of Tables

Bids fair to become the  
BEST SELLER in the  
TECHNICAL DEPART-  
MENT of the MOTION  
PICTURE INDUSTRY.  
It is MOVING FAST  
and the demand is  
WORLD WIDE. The  
price is only \$1.00 at  
dealer's.

# 16MM.





# Television Up To Date

[Mr. Lubcke needs no introduction to the readers of THE INTERNATIONAL PHOTOGRAPHER, nor to the widely spreading world of Television, nor to Radio. Since 1930 he has been director of Television of the Don Lee Broadcasting System, which has pioneered in Television on the West Coast. This latest interview with Mr. Lubcke is both timely and ex cathedra. There is something in it for all concerned, not forgetting the movies.—EDITOR'S NOTE.]

*Question:* We have been reading much about Television in the press in the last few months. We have been told that Television is here; and that it will never come. We have been told that there is no barrier to its immediate commercial use; that the barrier is a financial one; and again that it is a technical one. Mr. Lubcke, what are we to believe?

*Answer:* Some people tell us that technically, television is now at the same point as it was at its inception. This, of course, is false. Television is governed by the same basic laws that have always existed, but the applications thereof have been greatly refined. Problems that were thought to be impossible five years ago are now solved. The demonstrable results have greatly improved, as will be acknowledged by anyone who has followed the art for any period of time.

Some people tell us that we must have a complete television network throughout the United States. In this case the problem is surely financial, regardless of whether or not a technical question is involved. The immediate construction, installation, and operation of a national television system would be a monumental achievement. It would be fine to have television come to our people in this way. But things have not been done this way before.

Radio broadcasting started with a few scattered stations of inferior quality and low power. Radio chains were hesitatingly put together by combined established individual stations. The General Motors organization grew from small beginnings, and Henry Ford started his present immense enterprise in a backyard garage.

*If it had been proposed or insisted that any of these enterprises be launched on their present scale, none of them would have been started.* It is to be noted that the English are starting with a single television station, although they probably envision a system as pretentious as the proposed American network.

A sane review of the facts naturally reveals that a modest initial launching of television in accordance with an ambitious ultimate plan, if needs be, is the only solution. The time for commercial overtures in this regard draws nigh. But before any gainful endeavors can be realized from television, its commercialization must be allowed by the Federal Communications Commission. The Federal Communications Commission cannot properly allow commercialization until they see definite indications of its existence. On the other hand, financiers are reluctant to engage in enterprises of national scope in which the opportunity for profit is prohibited by statute. Consequently we have a vicious circle which prevents the activity it proposes to establish.

Through the efforts of the few forward looking pioneers engaged in television research at the present time, this circle will be broken. They are on the inside, of course, because they are "making" the inside. Being pioneers in experimental television they will be pioneers plus in commercial television. They will not make large expenditures unwisely, as is often done by the uninitiated. Some motion picture studios did this in the first days of sound, we are told.

*Question:* How is television coming?

*The Editor*

*Interviews*

*Harry R. Lubcke*



*Answer:* This seems to be pretty well answered by current reports. They are all about television as an adjunct to radio broadcasting. England is following this plan.

Free radio broadcasting, made possible by advertising sponsorship, is preeminently an American institution. Surely we will follow this plan, regardless of what some say about the cost. The American advertiser lives on his ability to do something "bigger and better," and this is what television-radio broadcasting offers him. Will he take it? He cannot afford to do otherwise, any more than a metropolitan store can afford to deliver by horse and buggy.

*Question:* How will the coming of commercial television affect the stage and the motion picture industry?

*Answer:* This can still be answered by the reasoning of our last interview. (July, 1933, *International Photographer*.) To quote: "I believe television will find its sphere of activity as a home entertainment, and as such will not directly compete with the stage or motion picture theatre. It will, undoubtedly, change the type of presentation that we will go to the legitimate and the motion picture theatre to see. Many people believed that the telephone would destroy the usefulness of the telegraph, but we all know this was not the case. The telephone restricted the field of the telegraph because it handled certain situations in a better way, but they both enjoy a proper field of activity at the present time."

"The attraction of a crowd will still cause the American public to go to the theatre and the attraction of the living presentation will cause the stage to survive for all time. Football stadiums are still filled by folks who want to be there, although they could probably find out more about what was happening by staying home and listening to the radio."

*Question:* What will be the part of films in television?

*Answer:* A big part. By reason of their natural adaptability for television broadcasting, because several prints can be made of a production and these economically sent on a tour of the countries' television outlets, and because the production of the show can be done in piecemeal style, as is usual in motion picture work, films will play an important part in the television scheme of things.

Studios will find a new avenue of activity in producing films for television. Production will not be in the usual way, but when the procedure is shown, there will be just as great artistic and commercial opportunities as now exist.

Studio executives are beginning to wonder about radio broadcasting. Television offers an opportunity to weld these two great entertainment industries closer together, into an understanding and profitable whole.



# The Hoi Polloi

A Saga of the Turf

By ESSELLE PARICHY, *Our Globe-Trotting Camera Master*

**I**T HAS been many years since my baptism of betting on a horse race. I can still write from the lexicon of youth upon the Sport of Kings, for the pastime has taught me experience.

In the language of the race track, I have followed the meets like migrant birds the seasons. I have pursued Lady-Luck, touched her magic charm, inhaled the perfume of her hair, and I have emerged from the chrysalis of torpid delusion into the rare atmosphere of her tinseled heights.

I have had my lean years, too, for I have furnished gastronomic banquets for many a nag. The hors d'oeuvres of horse flesh has flavored my jaded palate with saccharine sweetness and bitter gall.

The rank and file of humanity is made up of inordinate chance-takers. Is there anything more tantalizing? It has been a glamorous life following the creators of chance.

Perhaps, after the patina of old age settles on these weakening shoulders and creaking knees become too decrepit to stand the strain of watching them run, I'll be found weeping in the shadows for not being the grand old sport and laying a wager on these fast thoroughbreds.

Anything can happen in a horse race; it is as true as that blue grass grows in Kentucky.

Up at the "Big Apple" last fall I cashed in on a four-horse parlay. They were all second string plugs and the avalanche showered down a stall full of horsefeathers. It was like a snowfall in the late springtime. I almost bowed a tendon crashing the pay window. There was amazement in the bland face of my stooge at the pay-off.

"You're not going to feed all that hay back to them, are you, sucker?" he asked. "Why don't you take a boat ride across the big pond. It's getting warm along the Mediterranean . . . see the world. These plugs will be running when you get back."

Not a bad idea, I thought. I always wanted to see the Holy Land, Egypt, the cradle of civilization, with her pyramids and Sphinx . . . Paris, London, Madrid . . . Monte Carlo! Now there is a place!

Staring across the autumn dusk that was closing softly about us, I murmured dreamily: "They don't sell racing form charts over there, do they? How am I going to keep track of the oat-destroyers?"

"I'll keep your records for you," the stooge lamented.

So here I am, folks, in the land of antiquity. I am at a place called Luxor along the Nile. You come down to it from Cairo toward the equator, yet they say it is Upper Egypt. I'm sort of mixed up here.

There is much to see. Temples in ruins that the earthquake shook loose back in '27. I mean 27 B. C.

The best hostelry here in Luxor is the Winter Palace Hotel. It is run with Swiss movement, as are all the better hotels in Egypt. I expect the goateed maitre d'hotel in his imperial aloofness to yodel any moment. There are some pretty swanky characters here, dukes, lords, ladies and all the upper crust of the continental beau monde. I sachet about, but I am alone, as they pay little attention to Americans.

This morning a sleepy Bedouin house boy put up a poster in the lobby. It was a large placard placed on an easel. On the card was thumbtacked a large photograph of a string of camels squatting in a line-up, like

a start of a post race, and penned in a sloping scrawl over the picture in large letters were:

LUXOR GYMKHANA CLUB  
CAMEL, DONKEY AND HORSE RACES  
2:30 P. M.  
TODAY

*In Aid to Local Charities*

I turned to the maitre d'hotel and asked: "You run races here, too?"

He looked at me in surprise. "But, yes, of course. Animal racing is known the world over. Camel racing is very exciting, Monsieur. Your dragoman will take you out if you so like to go."

"Je vous remercie, I think I will trek out and take a gander at it," I kowtowed.

Driving out through the labyrinthian streets of the native village, passing the multitude of odoriferous stalls with their variegated smells, I was glad to get out into the open countryside. This afternoon it seemed as if all roads led to the races.

The track here looks like Miami's Tropical Park in January, fringed with palms and hibiscus. However, racing at the Luxor Gymkhana Club is not a classic. The meet does not have the horsey atmosphere of Churchill Downs or Hialeah, Belmont or Havre De Grace. No celebrated riders mount these fast "ships of the desert" . . . all the customary rules and formulas of figuring a race fail when judging camel flesh. All you know about the camels is that they have four legs to run on . . . you do not look into racing form charts to learn about the past performance of a racing camel.

You do not need to look up the camel's zodiac to see whether the planetary astrological aspect is favorable this day for him to win . . . you do not need to rack your brain on what whoosis owns the asthmatic quadruped plodding languidly before the judge's stand.

You can be pretty sure when you put your piastres down on your favorite that it is actually the camel listed on the price board and not a doctored ringer.

You do not need to worry about the trustworthiness of the camel's owner, trainer, stable boy or jockey, for most likely the owner is all of these, and you will find him usually riding the race.

So you rely on hunches.

A hunch in the mental depths of your mind is nothing more than a teaser for your vanity. Some hidden voice in the cavity of your subconsciousness sends out a feeble message. "Play that one," it seems to say.

So you become a guesser of camel flesh. You circulate, mingle about the crowd, looking for dope . . . information . . . but find none. They are all guessers here.

There are no race track touts to give you salivariatic palaver: "Fatima's owner says she's ready to win."

There are no rubber-stamp phrases of tipsters or the usual race track talk here such as "I like Nile Night on a faster track," and so on.

The grandstand is filled with a brilliant take-a-chance throng. The turf is crowded with Egyptian vendors and confidential guessers. The place throbs and reeks with suppressed excitement. An undercurrent of gambling prevails. These foreigners have a sportsmanlike air, yet are thrifty in the midst of speculation.





Oval at left: Without chute or barrier, the camels squat in perfect alignment and await the starter's gun. The accoutrements of a racing camel consist merely of a crude wooden saddle over the hump of the animal, and around the head a braided rope fastened below the mouth in "Y" fashion. Circle at right: Native camel racers prepare their entries for the next race at the Luxor Gymkhana Club. The burnus and the kaftan are the only stable emblems of these jockeys. Center: Native donkey boys line up for "face to tail" race. My alfalfa No. 6 donkey seemed to have a sardonic glint in his eyes as he looked in my direction.

I looked out at the race course . . . it is a well tailored turf oval, without chute or barrier. The camels for the race were being walked around under the critical eyes of the judges in the pergola.

The camels line up on an imaginary starting line. The race is twice around the course, about eight furlongs.

These camels are no morning glories, fresh and dewy at the post, but rather withered looking under the hot glaring afternoon sun. The handlers have difficulty lining up the ornery, snarling mounts.

The accoutrements of a racing camel consist merely of a crude wooden saddle over the hump of the animal, and around the head a braided rope fastened below the mouth in a Y fashion. To this is fastened a single rein, part chain and part rope.

At the betting ring the ticket chopper addressed me in perfect Mayfair English: "Here you are, sir, here you are! What is your choice, sir, in this race? Bet them and let them run!"

I picked number six camel. He has a sarcastic leer on his rubber edged lips as they hang open. The process of backing him up in line seems to irritate him considerably—his flat, spatulate feet hold the turf as if they were glued down. After several vigorous hindquarter whacks the camel dropped to his knees like a dock dredger hitting placid waters.

The tension was exciting, almost as thrilling as a thoroughbred start. The starter with a pistol in hand cried: "All cl'ar!"

Bang!

Up sprung the camels in unison like a wave of a backwash.

"They're off!"

A roar burst forth from the crowd. I caught the hysteria of the race. Up went my temperature. In my veins the blood flowed faster than Nile water over the first cataract.

How these camels can run!

Lotus Flower is out in front!

Look at Cleo's long stride! Where's Achmed?

Achmed can't win, he's bottled!

Find your jockey if you can, look for his number, as there are no jockey colors in camel racing. No bright colors fly with the mounts . . . no satin shirts bear vivid stable emblems.

Burnous and kaftan, soiled by Nile muck, are the habiliments of these riders.

The camels are bunched in the turn.

"Come on, Cleopatra!"

There is plenty of roughness in this contest. Bumping

and ricocheting across the track is legitimate. The idea is to get your camel home.

Here comes my camel! Out of the dust on the turn, another camel is coming up to give my No. 6 challenge. Long legs beat the air. The right arm of my camel jockey begins to raise; the long whip falls as he plies it to the camel's flank.

They are in the stretch!

With kangaroo hops, side lopes and gyrating speed they come thundering home.

Plead with your camel! Pray to Allah!

"Come on, six!"

Flaring nostrils speed by, heads bobbing, necks outstretched, the ungainly legs flying out at oblique angles. The camels are coming!

The stands cheer unrestrained, bellowing voices yelling until it becomes a solid phalanx of sound like summer thunder.

The camels go past the finish line. What a close race. Take a surreptitious glance at the number board.

Second!

My camel was second . . . necked out . . . rotten luck!

Settle down, smoke an amber cigarette . . . it's lethargic to the nerves. It is only a race, after all!

Fifty piastres out. Got to recoup.

A jovial sport standing at my elbow cried, overbrimming with joy: "I say, I had the bloomin' winner! A sterling run, eh, wot?"

I left the stand. A cluster of natives were arguing in Egyptian. I found my dragoman.

I asked him: "What is your favorite in the next race. You know all the camel men? My 'jeloppy' ran second in the last race and my money was on his proboscis. I want to recoup."

"You want to recoup," he said. "Try donkey race next. I personally will ride my special donkey, No. 6. He sure win—put your money on me. My donkey pretty fast . . . him rest two days now . . . eat lots alfalfa."

"Okay," I said.

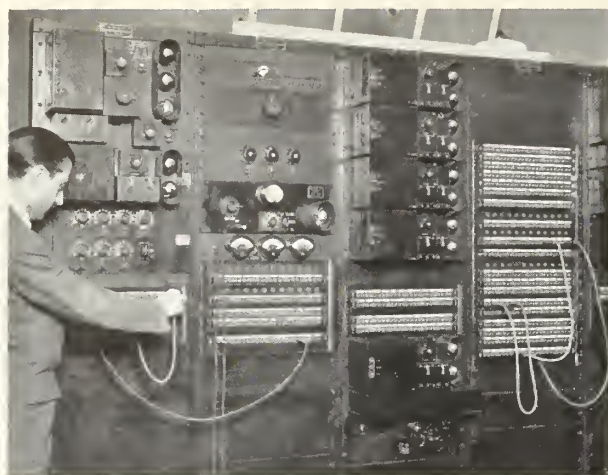
Nine donkies appeared on the track devoid of any kind of saddle or rein, wearing only a cool complacent expression on their sanguine unkempt features.

Ho! What a dumb bunch of thoroughbreds!

To my surprise the riders mounted the animals backwards.

What kind of a race is this . . . face to tail? This must be some sort of vaudeville entr'acte sandwiched in to pacify the pangs of lost piastres of the last race, I thought. How well these Egyptians know how to enter-

(Turn to Page 20)



A view of a sound channel, showing arrangement of the bays.

While it may seem that this and the following chapter go off at a tangent from the subject matter of the preceding chapters, that digression is not so radical as first glance may suggest. In fact this is perhaps the most logical place in the series to explain the arrangement and manner of connection between the pieces of equipment in the standard sound recording installation of the Western Electric system. Absolute uniformity is maintained in all such installations so that operation and maintenance engineers may go from one recording studio to another and still be thoroughly familiar down to the smallest detail with the arrangement and connection of the equipment at the new studio.

Following the example set by the studios, the engineers who design public address systems have adopted the practice of mounting amplifiers and associated apparatus of the public address system in "relay racks" of standard dimensions, corresponding to the sound recording installations. Amateur radio set builders, even, are beginning to follow this plan of apparatus arrangement as its advantages become more widely known.

The Western Electric system of mounting most of the recording amplifying and associated equipment in standard relay racks has the dual advantages of providing a solid and permanent installation and of placing the pieces of equipment in the most convenient positions for operation and maintenance. And likewise the installation is more flexible, permitting changes to be made more easily in the arrangement of the panels as well as in the individual pieces of equipment mounted on the panels.

In permanent recording installations, all of the wiring to and from the racks is concealed in metal gutters laid beneath the floor of the room; and the wiring within the racks between the panels is neatly cabled and run up the inside of the U beams that form the sides of the racks. Metal dust covers that are easily removed are fastened to the backs of the panels that carry amplifiers and other apparatus. In addition to serving as a protection to the delicate apparatus and wiring, these covers greatly improve the appearance of the installation.

Metal front panels are customarily employed on the equipment; and as they are bolted to the grounded metal rack, the whole assembly of panel and cover serves as an electrostatic and electromagnetic shield for the electrical circuits. Each panel and dust cover forms a unit that may be removed from the rack without disturbing the rest of the equipment.

#### *The Relay Racks*

The relay racks that support the panels are tall rectangular frames of cast iron having two angle-iron mounting feet, two upright  $1\frac{1}{2}$ " by 3" U beams for

# Motion Picture Sound Recording

## CHAPTER XVI

the sides, and heavy metal straps to hold the tops of the beams in position. The racks are always twenty inches wide; but they have two standard heights of 5' 9" and 6' 11", the height being matched to the amount of equipment to be mounted in the rack. The width of the U beams, which are placed so that the openings of the beams are facing each other, causes the thickness of the rack without panels to be three inches.

The mounting feet of the rack are bolted by heavy lag screws to two, four-by-six inch wooden beams laid parallel along the floor, but insulated against vibration from the surrounding concrete by layers of cork. The opening between these beams is just the width of the rack (three inches), and gives access to the gutters beneath the floor for the passage of the cabled wires from the equipment mounted on the rack.

#### *Panel Mounting Arrangement*

On each face of the U beams forming the sides of the rack, vertical rows of holes are drilled and tapped for 12-24 machine screws. As the  $\frac{1}{4}$ -inch thick iron panels are all exactly nineteen inches wide and are slotted uniformly at the sides to match the mounting screw holes, the positions of the panels may be changed on the racks without any concern that they will not fit the holes properly. The height (or width) of the panels varies considerably, depending on the type and amount of equipment mounted on them, ranging all the way from  $1\frac{3}{4}$ -inches to twenty-one inches.

That portion of the equipment that must be varied or regulated—such as rheostats, potentiometers, and control switches—is mounted in convenient positions on the front of the panels; while the remainder of the apparatus is concealed from view by the dust covers on the back. The meters are of the front-of-board mounting type intended for use with metal panels and are mounted on the face of the panels. The tubes are sometimes fastened to the back of the panels inside the dust covers; but it is more general practice to mount them on the front where they can be replaced more easily when they cease to operate satisfactorily.

Blank metal panels of various widths are employed to fill in any open spaces left on the racks after the installation of the equipment. Round-head brass machine screws with a 12-24 thread are used to secure the panels to the racks. All of the rack equipment, including the rack, the metal panels and the heads of the mounting screws, is painted with a dull black lacquer.

#### *Arrangement in Bays*

Each rack with its mounted panels is termed a *bay*; and the group of several bays that serves to form a complete sound recording system or public address system is called a *channel*. The amplifiers and apparatus in each channel are divided into two, three, or more groups of closely associated equipment; and each group of equipment is mounted in its own individual bay.

This arrangement of bays and channels makes it possible to find any trouble that has developed in the system very easily and rapidly, because it permits the fault to be traced down to one particular group of amplifiers. This isolation of faults saves a great deal of time when shooting trouble through permitting a conservation and concentration of effort and time.



In a large sound recording installation, as in a motion picture studio, the several channels are placed in a row with a *central patch bay* at the center; or the channels are grouped in pairs, the particular arrangement used being dependent on the shape of the room in which they are installed.

#### *The Battery Switchboard*

The switchboards that permit control of the batteries that supply power to the channels and carry the regulators for the charging generators are usually placed along one wall of the room opposite the amplifier bays. The switchboards are made of thick composition panels which approximate the dimensions of the amplifier bays; and they are mounted in a long row in a similar manner. A separate room is generally provided for the batteries and charging generators.

With portable public address systems and sound recording trucks, only a very small battery switchboard is provided. Quite often, no switchboard at all is used with such installations: the switches on the amplifiers themselves being employed to turn them on and off; and when the batteries need charging they are removed from the circuit and taken to a charging plant. If the portable recording installation is arranged so that the batteries are permanently mounted in the truck, as is usually the case, plugs are brought out to the sides of the body to permit an external battery charging outfit to be used. The larger portable sound trucks have their own charging generators, as well as provision for battery charging from an external source.

#### *Fusing of the Channels*

In the permanent sound recording installations (and in the larger portable outfits), the fuse blocks and terminal, or connection, blocks for each bay are placed at the bottom of the bay at the back; while the circuit relays and resistance units are mounted on a strip of panel at the top, and likewise at the back of the bay. The fuse blocks are of bakelite and carry a number of fuses of a type known as "grasshopper" fuses.

These fuses are constructed so that when an overload on a battery circuit causes one of them to "blow," or break, not only is the circuit opened by the fuse, but an alarm bell is set going and continues to ring until the fuse is replaced, a signal light flashes on to indicate the bay in which the fuse is located, and a tiny "flag" is automatically erected by the blown fuse to make the finding of it easy. These flags are colored according to a code that corresponds to the carrying capacity in amperes of the fuse. All of the battery circuit leads from the switchboards are terminated at fuse blocks at the back of the amplifier bays; and other leads connect the fuse blocks with the battery-operated portion of the equipment in the bays.

#### *Connection of the Amplifiers*

The input and output circuits of all the amplifiers and other apparatus in each bay are connected by shielded leads to the connection blocks at the bottom of the bay; and from these connection blocks other shielded pairs of wires connect to the *main distributing frame*, or M. D. F., as it is abbreviated. This main distributing frame serves as the central distributing point for all the circuits—with the exception of battery circuits—in the installation.

The terminal blocks are of bakelite with metal strips running through them and projecting on each side. The output circuit of one piece of equipment is connected to

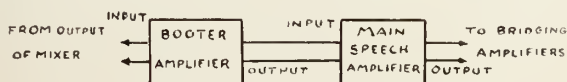


Fig. 1A. Straight through connection of amplifiers.

the ends of the terminal strips on one side of a connection block in the M. D. F.; and the input circuit of the next piece of equipment is connected to the ends of the same

By

CHARLES FELSTEAD  
*Associate Editor*



terminal strips on the other side of the block. This forms a straight through connection, and at the same time it provides a simple arrangement that permits the disconnection or picking up of either circuit for testing purposes or changes in the wiring plan. The arrangement is illustrated schematically in simplified form in Figure 1.

In a recording system employing several channels, the M. D. F. becomes quite an elaborate and complicated affair; and a book is usually compiled to designate the manner in which the terminal strips on the blocks are interconnected. Each connection block is stamped with a number and listed in the book; the terminal strips each have a number, starting at one end of the block and working toward the other end of the block. In small sound recording installations, however, the connections to the associated apparatus and amplifiers are made directly from the connection blocks at the bottom of the amplifier bay without the intervention of the blocks on an M. D. F.

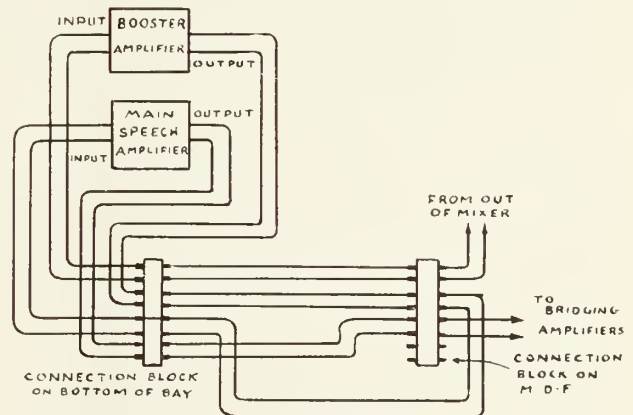


Figure 1B. Arrangement when connection blocks and M. D. F. are used (disregarding the input and output jacks.)

The relays that are installed at the top of one bay in each channel are for the purpose of switching amplifier circuits to permit checking on the operation of different circuits. These relays are controlled—in the permanent sound recording installation—by key switches in the monitor room. Auxiliary key switches are mounted in the bay below the relays to permit operation of the relays from the amplifier room when necessary. Small signal lights flash on when either set of key switches is closed. These lights serve as a warning that the amplifier keys are in use and that the regular keys are disconnected. Without these warning lights, an attempt might be made to record sound when the relays were not in a position to permit monitoring in the regular manner.

The next chapter will conclude this discussion of the physical arrangement of the Western Electric type of sound recording equipment in a studio.

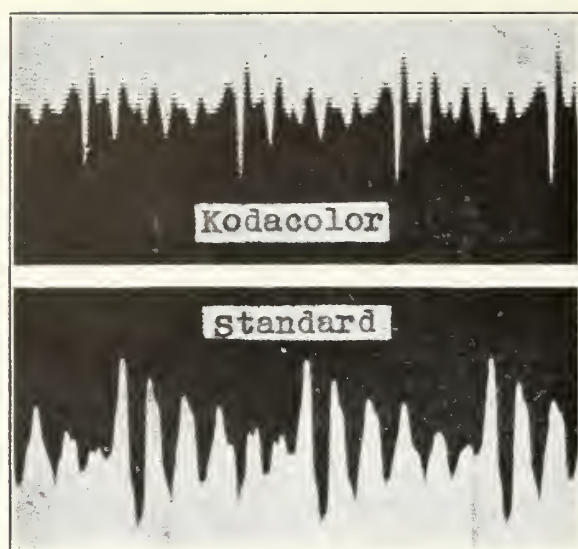


Fig. 1. Comparison of variable-width sound tracks on Kodacolor film and on standard film.

**I**T is the purpose of this paper to present a brief account of work done in the development laboratory relative to the production of 16 mm. sound films in full color. The medium selected was the well-known Kodacolor process of color photography and projection, a true three-color additive process,<sup>1,2</sup> by which excellent pictures may be made and projected in full natural color.

Following extensive development in the 16 mm. sound picture field, during which means were worked out for producing 16 mm. recording from 35 mm. sound films, some attention was given to the matter of producing 16 mm. sound records on Kodacolor film. It was thought at the time that some peculiar effects might arise if the sound recording beam were passed through the longitudinally lenticular base of the film before the final formation of the image on the emulsion, as in the case of the picture. The lenticular film base would no longer permit the formation of a true optical-slit on the emulsion, but would produce a series of images, each separated from the other, formed by the several cylindrical lenses in the path of the beam. For instance, if a recording optical system images an optical slit upon an emulsion through a longitudinally lenticulated film base, the image that results will be a true image of the slit in the longitudinal plane, and a series of more or less sharp images of the exit pupil of the system in the transverse plane. And as the cutting edge of the recording beam advances and recedes across the cylindrical lenses there will be produced a series of more or less fully illuminated images of the exit pupil of the system in the transverse plane, according to the extent to which the individual lenses on the film base are filled with light. Thus, in recording in this fashion by the variable-width process, the recording image consists of a series of more or less brightly illuminated image element, rather than a uniformly illuminated image of continuously varying length. Fig. 1 shows the comparison between variable-width recording on standard film and on Kodacolor film when the emulsion is in the reverse position.

It is seen that the blackened portion of the variable-width negative will comprise a series of longitudinal strips of density, rather than a continuous field of density, and that the boundary between the clear and the blackened portions of the track will not be a smooth curve, but will comprise a series of more or less fully exposed images

## Sixteen-Millimeter Sound Pictures in Color\*

By C. N. BATSEL AND L. T. SACHTLEBEN\*\*

**SUMMARY**—The nature of a variable-width sound track on longitudinally lenticulated color films is discussed, and the optical reduction of 35 mm. subtractive color subjects to 16 mm. film by the Kodacolor process is described.

*From the Journal of the S. M. P. E.*

of the exit pupil, in the transverse plane. Or, more simply, the boundary presents a serrated or step-like appearance where it crosses the lenticulations. This was a situation quite different from that encountered in usual variable-width practice, and it was felt that distortions of a more or less troublesome nature might arise from it.

A single-film, 16 mm. sound camera was chosen to test the feasibility of recording sound on Kodacolor film. The camera was constructed for normal black-and-white picture work with the recording system focused directly upon the emulsion in the obverse position. With Kodacolor film the emulsion was in the reverse position, making it necessary to refocus the recording system before a recording could be made. The original test recording was made on August 9, 1932. The sound record was very successful and definitely demonstrated the feasibility of recording sound on this film by the variable-width process, with the emulsion in the reverse position. It was found that no distortion of a serious nature occurred due to the use of Kodacolor film with longitudinal lenticulations.

Pursuant to the successful recording of sound on Kodacolor film in the single-film, 16 mm. sound camera, it was believed that subtractive color subjects on 35 mm. film should be optically reducible to 16 mm. film by the Kodacolor process, using an optical system similar to that employed in Kodacolor photography with the 16 mm. camera. The first test was made in a crude way using a projector fitted with a two-inch Kodacolor projection lens as a camera. The projector was mounted in a light-tight box and focused on a white card, upon which was projected an image of a frame from a 35 mm. Technicolor print. A strip of raw Kodacolor film was placed in the projector, exposed and reversed, with the result that a fairly promising image was obtained when the film was reprojected.

Following this, an optical-reduction step-printer was equipped with the necessary optics to permit printing directly from a 35 mm. Technicolor film to 16 mm. Kodacolor film. This optical system was essentially the one used in Kodacolor projection, with a three-color filter in front of the printing lens, and a negative lens at the 16 mm. film to produce a virtual image of the filter of the proper size at the proper distance from the film. The first system was improvised from such optics as were available in the laboratory, and the pictures obtained exhibited marked color dominants at the margins, due to the insufficient speed of the printing lens and the consequently diminished size of the filter image. Nevertheless, the results were remarkably promising. Later, a lens of sufficient speed was obtained to permit the required 3:1 ratio between the distance from the film to the filter image, and the total width of the filter image; with the result that a great improvement was effected in the color-balance, and the color dominants at the edges

(Turn to Page 20)

\* Presented at the Spring, 1934, Meeting at Atlantic City, N. J.  
\*\* RCA Victor Company, Camden, N. J.



---

---

# *We Offer You . . .*

---

---

. . . the negative film that in 1934 again walked off with most of the honors . . . Eastman Super-Sensitive "Pan." We offer you the aid of the Brulatour and Eastman technical staffs that service this film. Both of these factors mean much to cameramen . . . as records prove. Take advantage of them for your next picture.

---

---

## J.E.BRULATOUR, INC.

New York

Chicago

Hollywood

---

---

# Miniature Camera Photography



Leica photographs made on Eastman Supersensitive Panchromatic Film. Exposure was one second at  $f:2.5$ ; developed in Paraphenylenediamine-Glycin.

**INDIVIDUAL TREATMENT OF MINIATURE NEGATIVES:** In considering the developing of his negatives the miniature camera photographer usually thinks in terms of fine grain. The concern is chiefly which formula to use to obtain the finest grain. For a time this problem was naturally of great import; but now with so many excellent fine-grain formulas available, and pure specially refined chemicals with which to compound them the miniature camera photographer should consider the individual treatment of his negatives, so as to render the subjects he photographs in the best manner.

One of the features of the miniature camera is that you can take anywhere from about 12 to 36 pictures at one loading, so that you can "shoot" your subject from all angles, and then later choose the best negative from which to make the print. This is quite a help at times, especially when photographing news events, or in candid photography—one can take many pictures before it is necessary to re-load the camera.

The occasion for taking photographs quickly one after the other may not arise very often, and many of us have cultivated the habit of composing and judging the subject from various angles visually, then photographing from the best position; instead of exposing a number of negatives, subsequently choosing the best one for printing.

There are many times when the camera is loaded, a few pictures taken, it is set aside, and in the future another few exposures are made of an entirely different subject and under different conditions, it is then again relegated to the shelf until another opportunity presents itself, and in many cases when the entire roll of film has been consumed it may contain many varied subjects "shot" under widely different conditions. The usual procedure is to develop the entire roll of film in the same developing solution, for a definite time, the result being that some negatives on the roll turn out properly, while others do not seem ideally suited for the type of subject photographed.

Let us assume that our roll of film contains snapshots of the family, in which case snappy negatives with a good degree of contrast is desired, and it also has some winter scenes which were photographed with the intention of obtaining soft negatives with little contrast, to convey

the feeling of the gray dull winter days. We cannot expect to employ the same developing solution, and developing time, and have the various negatives on the roll of film rendered in the manner desired. Different subjects will require different treatment.

The question arises as to the manner in which the negatives in the roll of film can be segregated for individual treatment. Photographers possessing cine film type cameras accommodating magazines for bulk film, can load a number of magazines with short strips of film, so that one type of subject can be photographed on a single strip of film. It will also more easily allow the type of film to be chosen for the subject.

When film is purchased in prepared rolls or cartridges—the possessor of the roll-film type of camera can obtain his film only in this manner—a different method must be pursued. It will first of all be necessary to keep a record of the exposures taken; a card kept in the camera case, or pasted in a convenient spot on back of the camera will solve the problem. When a few exposures have been taken, the camera put away, and at a future date a different type of subject is to be photographed, a blank exposure is first given, which will facilitate the subsequent cutting of the roll of film.

An exposed and developed roll of film can be pressed into service, and used to measure at what points of the roll of film just removed from the camera it will be necessary to cut it, so that the different types of subjects will be on separate strips of film. The blank exposures are made to lessen the possibility of cutting into an exposed portion of the film. This is not the most efficient way of accomplishing this task. Many simple contraptions easily made at home will suggest themselves to the ingenious amateur whereby the exposed roll of film can be easily cut up into one or more portions according to the types of subjects it contains, and the amount of exposures given on each. Such an apparatus can be made with a sufficient degree of accuracy to obviate the making of the blank exposures.

After the film has been cut up into strips, the latter can be slipped into individual light-tight containers, a notation being made on the container of the type of subject photographed. These strips can now be developed in different manners according to the results desired.

One means of controlling contrast in the negative is through the time of development. As the latter proceeds, up to a certain point, contrast increases, so that to produce greater contrast the negative is developed for a longer time, vice versa. It must also be remembered that graininess, and density, increase as the developing time is increased, so that there are limitations to the time the negative is allowed to remain in the developing solution. On the other hand the negative cannot be developed for too short a time in order to obtain a low degree of contrast, for we must allow the detail to be brought out, and a sufficient amount of density to be built up.

The degree of contrast which will be present in the negative also depends upon the type of developing formula employed. We may take for example the popular East-

CINEX TESTING MACHINES

CINEX POLISHING MACHINES

**BARSAM-TOLLAR MECHANICAL WKS.**

7239 Santa Monica Blvd.

Phone GRanite 9707

Hollywood, California



man D-76 Borax Formula, which is listed below:

	A	B
Elon.....	30 grains	40 grains
Sodium Sulphite.....	3½ ounces	3½ ounces
Hydroquinone.....	75 grains	40 grains
Borax.....	30 grains	30 grains
Water.....	32 ounces	32 ounces

Developing time: 9 to 12 minutes at 65° F.

The "A" developer yields negatives with more contrast, whereas the "B" developer produces a softer quality negative. In this case we can control the contrast in the negative by the choice of the formula, without the necessity of varying the developing time. The latter can also be altered to produce more pronounced effects.

It will be noticed in the above formulas that the difference in the degree of contrast they produce is determined by the relative proportions of Elon (Metol, Rhodol, Pic-tol) and Hydroquinone. The latter developing agent produces hard contrasty results, whereas Elon yields soft results.

In the popular Paraphenylene-diamine—Glycin formulas the degree of contrast produced can be controlled by the amount of Glycin added to the solution. I have found satisfactory soft results to be produced with the following formula which contains only one gram of Glycin to a liter of developer:

Sodium Sulphite (dry).....	90 grams
Paraphenylene-diamine .....	10 grams
Glycin .....	1 gram
Water, to make.....	1 liter

Developing time: About 20 minutes at 68° F.

Naturally the film employed plays a great part in the determination of the final results. Fine-grain films such as Micropan, Panatomic, Fine-Grain Plenachrome, etc., yield contrasty results, which is ideal for certain subjects. However, when used for general pictorial work, in which case softer negatives are called for, such films should be developed for about two-thirds of the normal developing time, unless a special formula is employed. I have found the following to be satisfactory for the fine-grain type of film:

Paraphenylene-diamine .....	6 grams
Sodium Sulphite (dry).....	37.5 grams
Ammonium Carbonate .....	2 grams
Water, distilled .....	500 c. c.

The ammonium carbonate (which should be finely pow-



Taken with a Rolleicord Camera on Panatomic film, developed in Buffered Borax.

By AUGUSTUS  
WOLFMAN



dered) is dissolved in the solution just before the developer is to be used.

Developing time: 30 minutes at 65° F.

This formula has appeared in this column before but deserves repetition.

Miniature camera photographers usually have their pet formulas, and either the developing time can be varied, or the formula slightly altered, to produce the results desired. A little attention applied to the developing of the negative, according to the type of subject photographed, will manifest itself in improved results.

**FERROTYPE POLISH:** Polish for ferrotype tins can easily be made at home at a slight cost. A cake of bees' wax is purchased at the corner drug store, a small piece broken off and cut into chips, which are then placed in a suitably sized bottle, which is filled with benzine. The bottle is placed on its side and allowed to remain in this fashion for about two or three days, after which the solution is strained to remove any undissolved particles.

**NEW KODAK FILM MAGAZINES:** Eastman is now supplying Kodak Supersensitive Panchromatic, and Kodak Panatomic 35 mm. films in special magazines for cameras such as the Leica, Contax, Retina, etc. These films bear numerals along the edge from 1 to 36 so that a negative can easily be identified. This will greatly simplify matters when ordering prints from a finisher, and in filing the negatives.

**A TIP ON FILM DRYING:** It is a known fact that faster drying of the film after it has been processed results in a finer grain. When it is hung up to dry the surplus water on the film should be removed with a suitable expedient such as a Viscose sponge, or a chamois which has been well soaked in ether. It has been noticed that when completely dry the upper half of the film will usually exhibit a finer grain than the lower half. Gravity keeps pulling the water towards the bottom of the film with the result that the upper portion dries more quickly, and therefore exhibits a finer grain. To overcome this, many photographers have adopted the practice of turning the film around after it has been drying for a short time, so that there will be a more even drying over the entire surface, thereby eliminating the condition in which one part of the film exhibits a finer grain than the other.

**AN AID TO COMPOSITION:** How many times have you lifted the camera to your eye, using the finder as a framing device to see whether a scene is suitable for photographing. If a device is kept in the pocket to serve this purpose it will eliminate the necessity of constantly bringing the camera to the eye. I have taken a spring-clip Rhaco finder from a 3¼x4¼ camera and have found it very useful for this purpose. The miniature camera photographer can pick up a similar gadget at his photo dealer, or even cut out a frame in a piece of cardboard to utilize for this purpose.

# S. M. P. E.

## SOCIETY OF MOTION PICTURE ENGINEERS ANNOUNCES TENTATIVE PROGRAM FOR SPRING CONVENTION IN HOLLYWOOD, MAY 20th TO 24th, HOTEL ROOSEVELT

Tentative plans have been completed for the Spring Convention of the Society of Motion Picture Engineers to be held at the Roosevelt Hotel in Hollywood, May 20th to 24th, according to an announcement by William C. Kunzmann, Convention Vice President. During the five days of convention, nine technical sessions will be held. Two of these are scheduled for evenings to permit members to visit motion picture studios in the afternoons.

A get-together luncheon will be held on the first day of the convention, and the semi-annual banquet on Wednesday evening, May 22nd. A number of interesting events have been planned for the members. Studios of Fox, First National, and Walt Disney will be open for visitors, as well as the California Institute of Technology, Grauman's Chinese and Egyptian Theatres, Pantages' Hollywood Theatre, Warner Bros. Hollywood Theatre, and Gore Bros. Iris Theatre will provide free passes to all members during the convention. A special program of entertainment has been provided for the ladies.

Of particular interest will be exhibit of new studio and theatre equipment. A similar exhibit proved to be one of the features of the last Hollywood convention, and it is expected that this convention's display will be far greater than the one held in 1931.

All details of the convention have been arranged by William C. Kunzmann, Convention Vice President with the assistance of the Pacific Board of Managers, G. F. Rackett, Chairman, and Emery Huse, Executive Vice President. Peter Mole, has been appointed chairman of the local arrangements and reception committee. The studio and new equipment exhibit is under the direction of Oscar F. Neu. Herbert Griffin of the International Projector Company will be in charge of projection of all pictures during the convention. J. O. Baker of R. C. A. Manufacturing Corporation is in charge of the papers program, and Will Whitmore of Electrical Research Products, Inc. will be in charge of press publicity during the convention.

This being the first convention to be held on the West Coast since 1931, it is expected that a large delegation of members from the East will attend.

\* \* \*

### OFFICERS AND COMMITTEES IN CHARGE

#### *Program and Facilities*

W. C. Kunzmann, *Convention Vice-President*  
J. I. Crabtree, *Editorial Vice-President*  
J. O. Baker, *Chairman, Papers Committee*

#### *Local Arrangements and Reception Committee*

P. Mole, *Chairman*

G. S. Mitchell	E. Huse	G. F. Rackett
W. Quinlan	K. F. Morgan	H. W. Moyse
J. A. Ball	W. C. Harcus	J. A. Dubray
C. W. Handley	E. C. Richardson	F. E. James
R. H. McCullough	R. G. Linderman	C. Dreher

#### *Projection Committee*

H. Griffin, *Chairman*

J. O. Aalberg	R. H. McCullough
L. E. Clark	K. F. Morgan

Officers and Members of Los Angeles Local 150,  
I. A. T. S. E.

#### *Studio and New Equipment Exhibit*

O. F. Neu, *Chairman*

H. Griffin	J. Frank, Jr.
P. Mole	S. Harris

#### *Banquet*

W. C. Kunzmann, *Chairman*

P. Mole	W. Quinlan	E. Huse
G. S. Mitchell	G. F. Rackett	S. Harris

#### *Publicity Committee*

W. Whitmore, *Chairman*

J. J. Finn	A. Jones
F. H. Richardson	P. A. McGuire
G. E. Matthews	

#### *Membership*

O. M. Glunt, *Financial Vice President*

E. R. Geib, *Chairman, Membership Committee*

#### *Ladies' Reception Committee*

Mrs. E. Huse, *Hostess*

assisted by

Mrs. G. F. Rackett	Mrs. C. W. Handley
Mrs. W. Quinlan	Mrs. E. C. Richardson
Mrs. F. E. James	Mrs. F. C. Coates
Mrs. P. Mole	

#### *Headquarters*

The headquarters of the convention will be at the Hotel Roosevelt, where excellent accommodations and Convention facilities are assured. Registration will begin at 9 A. M. Monday, May 20th. A special suite will be provided for the ladies attending the convention.

#### *Technical Sessions*

A particularly attractive program of technical papers and presentations is being arranged by the Papers Committee laying special emphasis upon the developments in the technique, equipment, and practices of the studios. Several of the sessions will be held in the evening, to permit those who will be otherwise engaged in the daytime to attend. All sessions will be held in the Hotel.

#### *Studio and Equipment Exhibit*

The exhibit at this Convention will feature apparatus and equipment developed in the studios, in addition to the usual commercial equipment. All studios are urged to participate by exhibiting any particular equipment or devices they may have constructed or devised to suit their individual problems, conform to their particular operating conditions, or to achieve economics in production, facilitate their work, or improve their products.

Those desiring to participate should communicate with the General Office of the Society, Hotel Pennsylvania,

Phone GLadstone 4151

### HOLLYWOOD STATE BANK

The only Bank in the Industrial District of Hollywood  
under State Supervision

Santa Monica Boulevard at Highland Avenue



New York, N. Y. No charge will be made for space. Each exhibitor should display a card carrying the name of the particular studio or manufacturer, and each piece of equipment should be plainly labelled. In addition, an expert should be in attendance who is capable of explaining the technical features of the exhibit to the Convention delegates.

#### *Semi-Annual Banquet*

The Semi-Annual Banquet of the Society will be held at the Hotel on Wednesday, May 22. Addresses will be delivered by prominent members of the industry, followed by dancing and entertainment; music by George Hamilton's recording orchestra. Tables reserved for 8, 10, or 12 persons; tickets obtainable at the registration desk.

#### *Studio Visits*

S. M. P. E. delegates to the Convention have been courteously granted the privilege of visiting and inspecting the Warner Bros. First National Studio, the Fox Hill Studio of the Fox Film Corp., and the Walt Disney Studio. Admission by registration card only. A visit has also been arranged to the California Institute of Technology.

#### *Motion Pictures*

Passes will be available for the duration of the Convention to those registering, to Grauman's Chinese and Egyptian Theaters, Pantages' Hollywood Theater, Warner Bros. Hollywood Theater, and Gore Bros. Iris Theater.

#### *Ladies Program*

An especially attractive program for the ladies attending the Convention is being arranged by Mrs. E. Huse, *hostess*, and her Ladies' Committee. A suite will be provided in the Hotel where the ladies will register and meet for the various events upon their program.

#### *Tentative Program*

##### MONDAY, MAY 20TH

- 9:00 A.M. Registration
- Society Business
- Technical Papers Program
- 12:30 P.M. Informal Get-Together Luncheon
- Short addresses by prominent speakers.
- 2:00 P.M. Technical Papers Program
- 8:00 P.M. Visit to Walt Disney Studio
- Admission by registration card only; direction of Mr. W. E. Garity.

##### TUESDAY, MAY 21ST

- 9:30 A.M. Technical Papers Program
- 1:30 P.M. Visit to Warner Bros. First National Studios.
- Admission by registration card only; luncheon and tour through studio; direction of Mr. F. Murphy.
- 8:00 P.M. Technical Papers Program

##### WEDNESDAY, MAY 22ND

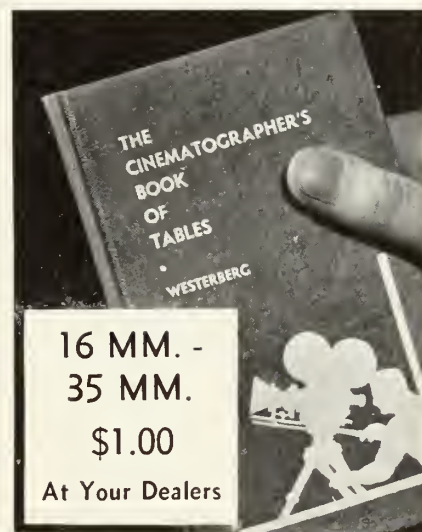
- 9:30 A.M. Technical Papers Program
- 2:30 P.M. Visit to Fox Hill Studio
- Admission by registration card only; direction of Mr. W. Quinlan.
- 7:30 P.M. Semi-Annual Banquet of the S. M. P. E.
- Addresses by prominent speakers.
- Dancing and entertainment.

##### THURSDAY, MAY 23RD

- 9:30 A.M. Technical Papers Program
- 1:45 P.M. Visit to California Institute of Technology; direction of Dean F. W. Hinrichs, Jr.
- 8:00 P.M. Technical Papers Program

##### FRIDAY, MAY 24TH

- 9:30 A.M. Technical Papers Program
- 2:00 P.M. Technical Papers Program
- Adjournment of the Convention



Published in  
Hollywood

by

INTERNATIONAL  
PHOTOGRAPHER

1605 N. Cahuenga Ave.

## BACK — GROUND — PROJECTION

— STEREO — PROCESSING —

## GEO. J. TEAGUE

Rock—Steady

Mitchell or

Bell & Howell

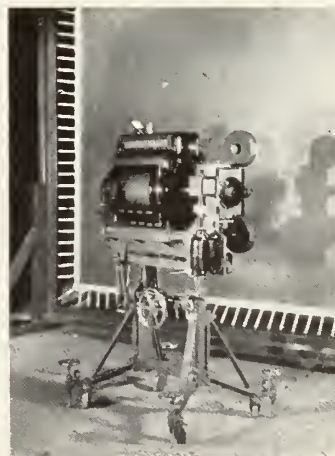
Registering

COMPLETE RENTAL SERVICE

GENERAL SERVICE STUDIO

Hollywood

Equipment Europe & Hollywood  
MACHINES MANUFACTURED



# CINEMACARONI

By ROBERT TOBEY

(With sauce for those who like it.)



## HOLLYWOOD HONEYMOON

*A novel novel of a thousand and one nights in a daze.*

By R. THRITIS

**The characters:** Keep reading. You'll find out!  
**Synopsis of preceding chapters:** Perriwether Murgle, press-agent for the lovely Lili Liverblossom, Flamboyant Picture Studio's weaning queen (and that's no baby-talk) has been carried off by a large Bald Eagle known as Willy Nilly. None of your business why. Lili is a little worried for fear she may lose her favorite press-agent, and casts about for a way to rescue him. By a chain of reasoning peculiar to her kind, Lili figures out that a ghost will know the way to the eagle's eyrie. Whether she is right or not, future installments may tell. Right now all that worries Lili is where to find a ghost.

### CHAPTER V. Up Gives the Ghost

Frantically racking her brain; frantically trying to figure out where she could lay hold of a ghost, Lili paced back and forth in the narrow confines of her living room. Now and then she paced back and second, third, or fifth. Always thinking of her public and its love of variety, that was Lili. Of course she was thinking of her problem, too. But she wasn't making much headway.

Suddenly there was a violent ring from the telephone. Being a connoisseur of rings, Lili cannily examined the thing to see if it had any stones of value set in it, but deciding otherwise, she picked up the receiver and with her spontaneous but charming originality, said "Hello."

The answer was the same, except that it came in a basso profundo instead of a \$5,000-a-week contralto. In a flash Lili recognized the voice. It was that of an old friend, a writer who made his living writing articles under other people's names. About 75% under.

Lili minced no words. As a matter of fact, Perri had been promising to buy her a word-mincer for many a moon, but this was no time to be mooning about missing word-mincers.

"I say, old thing," said Lili, "I would appreciate it no end if you would do me a favor. Just a little favor, don't you know, and quite simple for you, old chap."

"Say, kid," said the basso profundo, "I know you. You don't have to talk English to me. Drag yourself back to this continent and tell me what you're talking about."

"Well, looka here," said Lili, reverting to her inimitable dialect, "looka here. You're a ghost writer. That's your business. Well, if you ever wanted to do me a favor, now's your chance. Just write me up a ghost, kid, write me up a ghost. No special qualifications, just any, old ghost will do. The quicker the better."

There was a dull thud at the other end of the wire.

(What has happened at the other end of the phone? Will Lili's mysterious friend write her up a ghost? And how is Perri doing, sailing across the desert in the talons of Willy Nilly, the Bald Eagle? I don't know yet myself, but maybe we can get out of this mess before next month. Who knows; maybe this page will be blank. Please don't trample the women and children.)

The California State Department of Agriculture has lifted the ban on Florida fruits.

\* \* \*

So now more peaches will flock to Hollywood.

\* \* \*

With maybe a prune or two.

Clair Trevor is threatening to start a new feud with the set of sterling silver finger nails sent to her from Paris.

\* \* \*

No telling where metal poisoning will break out next.

\* \* \*

A nice new brass face wouldn't do some of our screen players any harm.

The whole town's talking about "The Whole Town's Talking," the latest vehicle for Edward G. Robinson, "Eddie" to the gang. A lot of it is publicity chatter, but the picture has a novel twist to it, and it is amazing to see Robinson's deft handling of the two widely divergent roles he plays.

**THE MACARONI BOWL**, by the Shovel Boys (they dish the dirt) \* \* \* This month buttons up the racing season at Southern California's new and glamorous track, Santa Anita. For three months this Los Angeles Turf Club enterprise has been chief mecca for the movie people. Nearly every stellar name in the industry has been ogled in the Jockey Club. \* \* \* Connie Bennett was so enthusiastic she finally bought a horse of her own. \* \* \* So did Bing Crosby, who was there day after day, with his hair so long you could hardly tell him from the horses. \* \* \* Al Jolson has several of his own ponies, and lost pounds rooting for them to come in. \* \* \* Louella Parsons went out every week to keep an eye on the celebs, but most of the time her gaze was glued on the ponies. \* \* \* One femme star had a system, and won a small fortune playing it. She bet on a certain jockey. \* \* \* I had a system too, but perhaps we'd best charitably skip over that. Heigh-ho! \* \* \*

The Kay Francis nautical party at the Vendome was notable chiefly for the number of people that got skinned sliding down the chute that formed the entrance. At first there was a big pneumatic pillow at the bottom of the chute to help break your fall. Among the early arrivals was a large lady with pins in her corset. After that you landed on your own. \* \* \* Margaret Lindsay has taken up the pastime of throwing cards in a hat at a distance of five paces. The doctor hopes for eventual recovery. \* \* \* Buck Jones has a beautiful ranch out in Van Nuys. \* \* \* John Barrymore hadn't seen his 13-year-old daughter, Diana, for several years. So he took her and six chums to a night club. Probably bored her silly. \* \* \*

**Production schedule gem for this month:**  
I'LL LOVE YOU ALWAYS, NO. 13  
(to replace PRIVATE PROPERTY).

Lester Stofen, renowned Los Angeles tennis star, is to marry Ruth Moody, Warner Brothers' contract player. The wedding is set for summer. Pictures were made of the happy couple on a movie set.

\* \* \*

So that makes one set apiece to date.

\* \* \*

Marriage won't knock anything off Stofen's income tax. Most any man gets a \$2,500.00 consolation immunity if he owns a wife. He gets taxed only on his earned net income.

\* \* \*

But a tennis player gets no reductions. All his salary is net income.

\* \* \*

It's always best to stay away from animals that eat their food rapidly.

\* \* \*

Especially blondes.

Now comes news that motion pictures have been shown in a regular passenger air liner flying over the Allegheny Mountains.

\* \* \*

Every day the movies reach new heights.

\* \* \*

Give me expression No. 17, please, Miss Vitamin.

Latest contribution to the GEEVASENTENCE DEPT:  
Geevasentence with the word notwithstanding.

"The boy was tired but notwithstanding."

Recent theatre marquees:

LITTLE MINSTER  
THE MENACE

\* \* \*

THE FOUNTAIN  
I'LL FIX IT

\* \* \*

And this one sounds like Republican propaganda:

THE PRESIDENT VANISHES  
HAPPINESS AHEAD

KNEE CAP REVIEW

(No space left on my thumb nails)

Mr. Ferenc Molnar, Miss Margaret Sullivan, and all the Laemmles of Universal Studio got together, stirred up the witching pot, and out of it came "THE GOOD FAIRY," as excellent a dish of good screen porridge as it has been my pleasure to see.

Mostly fun and frolic is this story of the little gal from the orphanage who sets out to shed sweetness and light in dark corners (one of these being Herbert Marshall's beard) and ends up by having the bread she cast upon the waters return to her with butter and jelly on it.

Chief plum in the cast is of course drawn by Margaret Sullivan, with the title role, but the other plums were plumb marvelous too. Frank Morgan was a riot in a spontaneous and vivid performance similar to the one he gave in the "Affairs of Cellini." Reginald Owen as the butler who tries to be guardian angel for the good fairy—and that no mean task, let it here be noted—is a priceless performer. Herbert Marshall does excellently with a role that offers less opportunities than the others.

The direction, cutting, and photography were nearly flawless. The first two were so smooth that the story flowed as inexorably as the Mississippi River, and Norbert Brodine's photography made Miss Sullivan appear as gorgeous as Jean Harlow is in real life.

Newspaper headline says:  
RARE FOSSIL UNEARTHED

\* \* \*

I read on with interest. But it turned out to be merely the discovery in Death Valley of a 30-million-year-old titanotheres skeleton.

POET'S CORONER  
THE HIGHBALL SONG

Tinkle, tinkle little glass,

Full of whiskey and ice and gas;

You give me an awful pain in the neck,

Or even a bad headache, frequently.

R. THRITIS.

A newspaper story stated that Jean Muir suffered a sprained shoulder and arm due to an unfortunate experience with a bolting horse.

## Kinema Krafts Kompany

calling AMATEURS

and

## PROFESSIONALS

Who want fresh 35mm. EASTMAN or DUPONT  
Gray Backed Negative.

Price—\$.02½ per foot

6510 Selma Ave. Hollywood, Calif. GLadstone 0276



# Hot Points

**D**ENNIS H. STOVALL, who writes that clever column, "It Happened Around Here," for the *Pasadena Independent*, turns loose the following saga, which should be committed to memory by every cameraman. Let Dennis do his worst:

The strangest and most thrilling experience I ever heard of came the way of a young friend of mine, Jack Harper, who lugged a heavy camera and old-fashioned brass-spiked tripod a number of weary miles out into the Mojave country to "shoot" a mountain lion. Jack had secured wonderful "real life" pictures of deer, coyotes, gray foxes and Catalina Island goats, not to mention all manner of birds and small game, such as rabbits and squirrels. But he wanted a "closeup" of a mountain lion.

## *A Quandry*

He was acquainted with a young rancher, Ned Ryson, who lived on a ranch in the foothill country of the San Bernardino, bordering the desert. This friend had assured Jack of at least a "long shot" at a lion if he came out. So Jack came—bringing his heaviest machine, and the big tripod. It was such a cumbersome outfit that Ned shook his head dubiously when he first looked it over and saw it set up.

"It's too heavy a load to tote over a desert trail!" he declared. "Especially that brass-spiked tripod. You better leave it at the ranch and take snap-shots. Anyhow, you won't have a chance to get up all that machinery in front of old Black Nose."

## *Big Fellow*

"Black Nose" was the name given to a huge mountain

lion that haunted the canyons and bluffs back of the Ryson ranch. A number of times he had been seen, nearly always at a distance as he slipped like a shadow from one rock cleft to the next. Once, quite unexpectedly, Ned came upon him while he lay sleeping on a rock shelf not thirty yards off. He was a monster in size—even for a California lion. At least, he looked plenty big to Ned as he lay stretched, full length, his sleek, tawny coat glistening in the sun. His plumed tail, fully four feet long, was draped over the shelf.

"That's the sort of a close-up I want to get of old Black Nose!" Jack declared.

## *Wanted His Camera*

"You'll never get it with that big camera—and that weighty tripod!" his friend declared. And again he advised leaving the tripod behind.

Jack insisted on taking it along. "If I don't get a short shot of the old lion, I know I'll pick up a lot of fine desert views," he maintained. So the tripod went along.

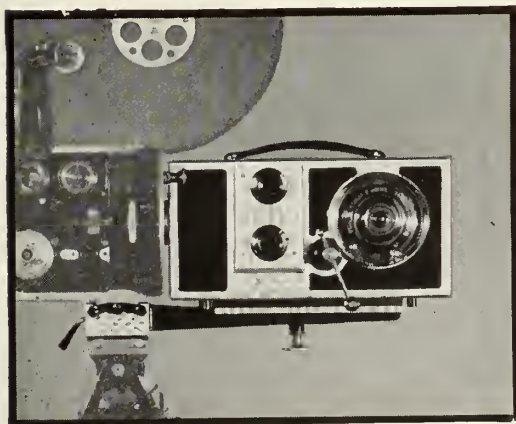
They rode horses as far as the base of a steep, winding trail near the mouth of a narrow chasm. Here they left the saddle mounts and proceeded afoot. Ned carried a rifle—"to play safe." He didn't want to take any chances with the big cat. He took the lead, promising to step to the rear and give his friend the "front spot" if they got close to the canyon bluffs where the lion was believed to have its lair.

## *Lion In His Path*

Ned was talking and clambering along a few feet in  
(Continued on Page 21)

## • A Symbol of Bell & Howell Leadership . . .

The history of Bell & Howell contributions to the motion picture industry has been very nearly the history of the industry itself. The B & H Cooke Varo Lens is a case in point,—the culmination of years of effort to perfect and extend the technique of "zoom" shots.



B & H Cooke Varo Lens in photographing position on the Bell & Howell Camera.

B & H F 2 Speed Panchro Lenses are corrected for the blue and red rays, as dictated by today's lighting and films, rather than for the blue and yellow rays. Eleven focal lengths, 24 to 108 mm. B & H Cooke F 2.5 Panchro Lenses, with the same correction and at lower cost, meet many needs where such speed is adequate. Seven focal lengths, 35 to 162 mm. Write for prices.

At F 3.5 the range of the Cooke Varo Lens is from 40 mm. to 50 mm.; at F 4.5 from 40 mm. to 85 mm. and at F 5.6 and F 8 the full "zoom," from 40 mm. to 120 mm., is obtainable. Adjustable stops limit the "zoom" as desired. One crank controls all moving parts. The iris is varied automatically with the focal length to keep the  $f/v$  value constant. Gives critical sharpness and full anastigmat correction at all points of the "zoom." Close focusing is done with auxiliary lenses. Write for full details. Sometimes available on rental to responsible studios.

## BELL & HOWELL COMPANY

1849 Larchmont Ave., Chicago; 11 West 42nd St., New York; 716 North La Brea Ave., Hollywood; 320 Regent St., London (B&H Co., Ltd.). Estab. 1907.

# The Crosene Color Process Makes Bow to the Industry

By SILVIO DEL SARTO

**W**ITH this issue I am happy to be able to announce to the film industry the completion of a new color process which, I feel sure, will revolutionize current practice in color photography, and which may ultimately replace black and white pictures altogether on the screen. I refer to the Crosene Four-Component Additive Process.

If it is true that photography can be made more nearly perfect as an artistic medium of expression by the addition of color, then it must follow that any development in color is one of major importance.

While it is true that experimenters in the field of color photography have been able in the past to produce startlingly beautiful results in the laboratory, it is also true that no one of them has yet been able to produce color so consistently good and at so comparatively low a cost as to render a process commercially practical. Something seems always to have been lacking: Ability to produce satisfactory prints in commercial quantity; definition on the screen comparable to black and white; uniformity in color rendition in those processes in which selective dyes are used. But now I am able to say that it is my sincere belief that the Crosene process has completely corrected these inadequacies and has given to the photographer, both still and motion picture alike, a system for color reproduction of remarkable accuracy throughout the visible spectral range; and, which is of the utmost importance, at a price closely approximating black and white production.

The Crosene process was originated by Gabriel Garcia Moreno, who will be remembered as the inventor of the Continuous (non-intermittent motion) Camera, as well as other devices of value to the cinematographer.

With the coming of sound to the motion picture, Mr. Moreno became convinced that there remained two more steps which logically must be taken if approximate perfection on the screen were to be achieved. These were

color and stereoscopy. With characteristic thoroughness he investigated the first of these, temporarily shelving the second, and decided that, commercially, a physical solution to the problem promised more than a chemical one did. In other words, his process would be an additive one, the success of which would depend completely on the purely physical laws of optics and of light. How accurate was his reasoning will shortly be ascertained by the entire film industry. This I confidently prophesy.

During the entire period of development of the Crosene Process one single factor was held to be of prime importance. That factor was commercial practicability. Perfect reproduction of color would be of industrial importance only so long as it would permit the producer to compete with monochrome releases.

Contrary to the premise of the Color Magnates who maintain that additive color systems are not acceptable to the exhibitors because they necessitate the addition of some type of optical device to the projector, the sponsors of the Crosene Process have realized from the first that the additive principle was the one which logically must be accepted if color reproduction on the screen were to compare favorably with black and white production from a practical, commercial point of view. So the Crosene Process exists today as a four component additive system which reproduces accurately, consistently and at low cost all the colors within the visible spectral range. The simplicity of the system is its most remarkable feature from the point of view of both the producer and the exhibitor.

The photography is done with standard monochrome equipment, with only such changes in the camera as normal bi-pack work requires—i.e., standard bi-pack magazines and a slight adjustment on the pressure plate to permit the passage of the double negative. There are no filters, and, of course, any lens may be used. As in normal bi-pack work, 33⅓% increase in illumination is

## World-Wide Motion Picture Development, 1934

### MOTION PICTURE EXPORTS INCREASE DURING 1934

Preliminary figures of American motion picture film exports for the year 1934 show a 30,000,000 feet increase in negative and positive sound and silent films over those exported for the year 1933 according to compilations made by N. D. Golden, Chief of the Motion Picture Section. During the year 1934, a total of 194,433,984 feet with a declared value of \$4,213,669 were exported as compared with 164,537,245 feet valued at \$3,581,017 during the year 1933.

The following table shows a breakdown of the above figures in the different classifications for the years 1933 and 1934:

Negative Sound.....	9,881,811	\$ 469,094
Negative Silent.....	3,157,955	141,715
	13,039,766	\$ 610,809
Positive Sound.....	147,696,004	\$2,890,436
Positive Silent.....	3,801,475	78,772
TOTAL .....	164,537,245	\$3,581,017
1934		
Negative Sound.....	9,021,753	\$ 380,555
Negative Silent.....	2,420,156	109,719
	11,441,909	\$ 490,274

Positive Sound.....	179,659,020	\$3,644,416
Positive Silent.....	3,333,055	78,979
	182,992,075	\$3,723,395
TOTAL .....	194,433,984	\$4,213,669

As in past years United Kingdom remains our most important outlet for American motion picture films both in footage consumed and as a revenue producing market. During 1934 this market has increased its consumption of American films by over 3,000,000 feet of film by importing 16,806,619 feet with a value of \$416,911 as against 13,620,160 feet with a value of \$455,551 for the year 1933. Second in importance is Argentina, importing during 1934, 15,558,935 feet with a value of \$354,692 as against 12,706,152 feet having a value of \$248,848 for the year 1933. Spain remains our third leading market importing 12,018,778 feet with a value of \$276,283 during 1934 as compared with \$12,116,637 feet of American films with a declared value of \$286,390 during the year 1933.

In Latin America, Brazil, too has shown an increase in American film showings by importing during 1934, 11,330,961 feet valued at \$255,026 as compared with 9,151,956 feet valued at \$156,158 for the year 1933. Panama maintains fifth position during 1934 by importing 9,504,095 feet of American made



# Something New in Color

## Under the Motion Picture Sun

necessary, that is to say, an increase in the diaphragm opening in the lens of  $\frac{1}{3}$  of a stop. The bi-pack negative, after being treated by the Crosene laboratory before exposure, is handled normally; that is, the two negatives are exposed simultaneously, emulsion to emulsion, the gray-back panchromatic negative facing the rear of the camera, and the orthochromatic negative carrying an orange-red dye on its emulsion facing the rear of the lens. After exposure the two negatives are returned to the Crosene laboratory for processing.

From these negatives a master positive print is produced by means of an optical printer and from this master positive are produced an unlimited number of master negatives by means of a conventional contact printer. These are returned to the producer and from them he derives his release prints, strictly in accordance with conventional monochrome practice.

In addition to these color negatives, Crosene will also furnish the producer with standard black and white prints if he so desires.

The economy in the production of the release prints is the factor which should be of the greatest interest to the producer. Their cost is exactly the same as normal black and white prints, that is to say, a cent and a half to a cent a foot; and, moreover, they are produced and handled in the processing laboratory exactly the same as normal positive releases.

Of further importance to the producer is the readiness with which the Crosene Process lends itself to any phase of cinematography. Any photography which can be done in black and white can also be done in Crosene Color, whether it be indoors or out; mid-night or high-noon; submarine or aerial. No additional illumination is necessary on the set or out-of-doors, no special cameras nor camera-men. On the set the actors and actresses wear no other make-up than is normally worn on the street. And this is perhaps the best test of all for the process; for the reproduction of flesh tones is so faithful as to show the

slightest variation of powder-white or olive tint. Any color system having these capabilities makes the simplicity of its application to newsreel work obvious.

The positive print which the producer releases is actually a black and white record of a four-component color separation. As in the case of any additive process there must be some optical device whereby these black and white color values are reassembled in their proper chromatic relation, one with the other, on the screen.

In the Crosene process this is accomplished with an optical unit so designed as to be readily interchangeable with the normal lens of any standard projector. This is the only alteration, if it can be called that, which the process requires in conventional projection technique.

This optical unit in shape and size resembles, in general, a normal projection lens, being completely enclosed in a barrel the outside dimensions of which are  $2\frac{1}{4}'' \times 7''$ . The whole unit is microscopically adjusted and its component parts immovably positioned. The only adjustment which can be made by the projectionist is the customary focusing of the image on the screen. Since there is but one way for the unit to be attached to the projector, any error is impossible.

The Crosene Process is owned by the Crosene Corporation, a New York corporation with head offices located at 52 Vanderbilt Avenue in New York City and laboratories in Los Angeles, California. Crosene Corporation is a licensing organization, not a producer, and will shortly be in a position to demonstrate the Crosene Process to the trade in New York City and Hollywood.

I have seen the Crosene process in operation, and have witnessed the results on the screen. Here is a color rendition of a remarkable fidelity at a cost comparable to monochrome production. Commercially the process presents unlimited possibilities; while from an artistic standpoint it has that rare quality of faithful reproduction which immediately distinguishes the genuine from the synthetic.

Washington, D. C., February 18, 1935

Prepared weekly by the Specialties-Motion Picture Division,  
Thomas Burke, Chief

motion picture films having a value of \$121,381 as against 8,021,243 feet with a value of \$156,158 during the year 1933.

The following table indicates the leading market for American motion pictures during 1934, and the comparative exports to these markets during the year 1933:

	LEADING COUNTRY EXPORTS 1933-1934			
	1934		1933	
	Feet	Value	Feet	Value
United Kingdom.....	16,806,619	\$416,911	13,620,160	\$455,551
Argentina .....	15,558,935	354,692	12,706,152	248,848
Spain .....	12,018,178	276,283	12,116,637	286,390
Brazil .....	11,330,961	255,026	9,151,956	156,158
Panama .....	9,504,095	121,381	8,021,243	99,843
Canada .....	9,283,091	324,028	7,413,851	278,496
France .....	7,992,078	169,079	6,442,195	131,150
Mexico .....	6,778,625	200,359	6,655,066	168,387
India .....	4,917,885	95,087	5,020,717	93,815
Bahamas .....	4,739,376	21,121	5,284,132	16,532
Australia .....	4,590,164	105,369	4,606,406	113,920
Germany .....	1,373,499	39,809	1,548,689	28,045

Exports of sensitized not exposed motion picture films increased over 10,000,000 feet during 1934 when 134,335,360 feet

with a value of \$2,524,068 were exported as against 123,299,668 feet valued at \$2,389,376 were exported during the year 1933.

Motion picture camera exports of 35 mm. gauge, during 1934, amounted to 380, having a value of \$167,009 as compared with 654 cameras with a value of \$149,381 during 1933. Exports of cameras of 16 mm. gauge show a marked decrease for 1934 over those exported in 1933. During the year just finished 1,152 16 mm. cameras valued at \$38,925 were sent abroad as compared with 1,602 16 mm. cameras with a value of \$45,508 during 1933.

Motion picture projectors however, on the other hand, show a satisfactory increase for 1934; 1,072 projectors of 35 mm. gauge valued at \$299,439 were exported as against 843 projectors having a value of \$250,842 in the year 1933. Exports of motion picture projectors of 16 mm. gauge for 1934 mounted to 1,408 having a value of \$74,706 as against 1,434 16 mm. projectors valued at \$60,046 during the year 1933.

Sound motion picture equipment exports during 1934 has increased over \$400,000. During this period \$1,406,778 worth of American reproducing and recording equipment was exported to all markets as against \$988,242 worth during the year 1933.

Please mention The International Photographer when corresponding with advertisers.



# HOLLYWOOD CAMERAMEN WIN SUCCESS IN THE ORIENT

Robert Miller is back home in Hollywood from his sixteenth trip to the Orient as photographer-in-chief aboard the Dollar Liner President Hoover.

During his sojourn, while awaiting the ship to return to America, Mr. Miller dropped in on our old friends, Paul Perry and Merl LaVoy.

Mr. Perry has just finished building a color laboratory at Manila preparatory to the production of a series of short subjects for release in the United States and elsewhere. This laboratory is the only one of the kind outside Hollywood.

It required six months to build and it lacks nothing that any color laboratory should be equipped with. One of its features is the installation of Frigidaire which, in that super-heated atmosphere is a blessing as well as an asset in production.

This achievement is the realization of Mr. Perry's dreams at the top of his career as a cameraman and



Merl LaVoy and his pet Igorrotes

Mr. Paul F. Perry, Local 659, and Bob Miller, 659, in Paul's new color laboratory in Manila. Paul has spent six months putting in this laboratory—the only one of its kind outside of Hollywood. He is now ready to start making color shorts for the American market. This laboratory is fitted throughout with Frigidaire.



Paul F. Perry, Carlos Padilla, leading man; Robert Miller, Rosa del Rosari, star; Doc George F. Harris, President, Philippine Films; Louis R. Morse, production manager and recording engineer; Eduardo De Castro, Director; James Mathews, cameraman.



a motion picture technician and he has before him what appeared to be unbounded success.

His photographic field is wide, beautiful and new to the screen and his color laboratory will be a boon to the many producers of pictures who will visit the Philippines in time to come.

Mrs. Perry is with her husband and they are very happy in their new home. Congratulations from the entire photographic world of Hollywood, Paul.

Mr. Miller found the irrepressible Merl LaVoy, that grand old warrior of the newsreels, at Manila. For two years this artist, soldier, newspaperman, explorer, diplomat, adventurer, has been busy in Japan, China, Siberia, Manchukuo and all points East and the picture attached hereto is evidence that he is great even among the head-men of the world famed Igorrotes. The Big White Father, in full regalia between the two dark gentlemen, is Merl, if the gentle reader does not know him, (all the rest of the world does.)

Mr. La Voy for many months has been employed by the famous Houserman interests, photographing a history of their gold mining developments in the Philippines. These mines are in the mountains above Manila and this propinquity enables Messrs. La Voy and Perry to see each other frequently.



# *Day-after-Day* EXCELLENCE

---

EASTMAN Super-Sensitive "Pan" Negative has played a part in productions that marked veritable milestones in cinematic progress. Yet its success in these outstanding pictures is based upon the same dependability it offers cameramen and producers every day in the year. Unfailing, day-after-day excellence is the quality that makes this film the natural choice for the screen's greatest ventures. Eastman Kodak Company, Rochester, N. Y. (J. E. Brulatour, Inc., Distributors, New York, Chicago, Hollywood.)

---

EASTMAN *Super-Sensitive*  
*Panchromatic Negative*

## THE HOI POLLOI

(Continued from Page 5)

tain. But no, it seemed this was going to be a race after all.

The attendance showed the same wild enthusiasm in the comedy of this meet as they would for a regular race run in a Hoyle manner.

Here goes another fifty piastres of mine on a clown act! I should dedicate my skull to the Museum of Neanderthal research.

My dragoman's alfalfa stuffed No. 6 donkey seemed to have a sardonic glint in his eye as he looked in my direction, as if to convey the knowledge that was clamoring to enter my feeble brain that I did not have a Chinaman's chance of cashing my bet on him.

They're off!

Literally as well as figuratively, for in that instant my dragoman was transferred suddenly from the perilous position atop the donkey's rump to the green terra firma below.

My No. 6 donkey was out in front without a rider, but his quick getaway was like the false dawn before the daylight, for the weight of his two-day alfalfa, carbohydrateous repast seemed to slow him up considerably.

The riders who were fortunate enough to remain astern these undulating vertebrae went jogging along holding fast to their donkey's tails like tenderfoot dudes on Texas bronchos.

My piastres vanished in the limbo of forgotten things, yet I still could enjoy this most unique performance. What a laugh! You live and learn!

The race was run and I left the track poorer but wiser, with another thesis inscribed on my mental decomposition. I certainly was an apostle of Barnumism.

No more galloping paloosas like these for me. Never again would I allow the talons of Lady Luck to clutch me. Never again would I listen to the abracadabra of easy money promised in the pink ticket.

Back at the Winter Palace, after a soul satisfying

dinner, the memory of my hectic afternoon was somewhat dimmed. From the dining room I sauntered out without aim or direction.

In the foyer the musical hum of a tiny ivory ball spinning about in a concave surface seemed to attract my fugitive thoughts. The ball was whirling at an enormous speed. I became possessed by the lethargy of its centripetal bounding. It drew me closer and a voice seemed to whisper to me to take one more chance on Lady Luck. The voice seemed to emanate from the No. 6 reposing on the red square. The red fascinated me, perhaps because I had been in it all afternoon, so with a feeling of futility I quietly placed twin pound notes on the crimson six. I'll just donate this case note, I thought.

Once more the hand of the croupier sent the ball spinning. I turned away from the table, not wishing to view the corpse of my hope bared before me. I shrugged my shoulders and walked into the salon before the spin could come to a halt and the play made.

Suddenly a Nubian floor boy pushed through the crowd and caught up with me. In his white gloved hand were several pound notes. He pushed them toward me.

"Here, Sidi, these are yours. Allah is good to you . . . number six red . . . it win!"

Ha! Lotus leaves back from Nile water! My first win in Egypt.

"Veni, Vidi, Vici!"

The orchestra is playing "Showboat's Old Man River," bringing on a surging wave of nostalgia. Apropos of this, I look up the sailing dates of the French Line and find the *Ile de France* sails on the 17th. Guess I'll hop a plane and make the sailing.

I'll cable the stooge to be at Uncle Sam's end of the "longest gangplank in the world" and we will trek out to Hollywood.

Just think . . . the ponies are running at Santa Anita now . . . I sure hope that stooge of mine has kept the dope sheet records alive.

## SIXTEEN MILIMETER SOUND PICTURES IN COLOR

(Continued from Page 8)

of the picture were practically eliminated.

The sound track of the 35 mm. Technicolor print was transferred to the 16 mm. Kodacolor film by continuous optical reduction printing, with the 16 mm. emulsion in the obverse position.

Summarizing, it has been shown in the laboratory that 16 mm. Kodacolor sound films can be successfully

produced without introducing serious sound distortions due to the peculiar character of the film base. Such films can be produced by either of two methods: By recording with a 16 mm. single-film sound camera at the time the picture is taken, or by optical reduction printing of the picture and sound track on the Kodacolor film from a 35 mm. subtractive sound film.

# Help the Motion Picture Relief Fund



**MAX FACTOR'S**  
NEW  
*Satin Smooth*  
**LIQUID FOUNDATION**  
A REVELATION IN FACIAL MAKE-UP

Please mention The International Photographer when corresponding with advertisers.



## HOT POINTS

(Continued from Page 15)

advance when they passed directly beneath an overhanging rock, less than two hundreds yards from the bottom of the trail. Jack, struggling under his load, paused an instant to catch his breath, and as usual, his alert eyes scanned the surrounding cliffs for a picture. He had already secured a number of wonderful views. He gasped, and his heart skipped a beat when he found himself staring directly into the yellow eyes and snarling face of a mountain lion. The great brute was crouched on the rock, ready to spring.

*Tripod is Protected*

For the instant Jack was struck dumb. He could not have made an outcry had he tried. He did quickly set his heavy camera on the ground, and as quickly step forward, in an effort to check Ned. Ned kept right on talking—and at the next instant, swift as a flash, the lion hurtled its long, lithe body from the rock. Jack caught its intended and murderous movement in time to shove his hand against Ned's back and push him into the brush. Then he whirled round with the spiked tripod held and pointed like a three-barbed spear.

The snarling brute impaled its throat on the tripod and fell crashing into a thicket of chaparral, going over Jack and missing Ned. It was as if a tornado had suddenly swooped down out of a sunlit sky. The lion screamed and threshed madly in the thorny tangle—but the tripod could not be loosed from its throat. By the time Jack recovered from his shock, and got on his feet, ready to use the rifle, the gun was unnecessary. "Black Jack" lay in a quivering heap. The mighty beast had broken the wooden legs of the tripod into bits—but the brass points still pierced its jugular vein.

*Better Than Gun*

It was several minutes before the young rancher could say a word. He cautiously approached the fallen Mojave

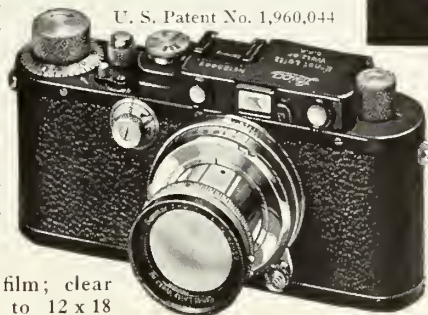
## "I Took a LEICA to the Stratosphere"— Says JEAN PICCARD

"The pictures we took came out very well. I am very content with the results. I appreciate specially the unusual focal depth of the Leica camera. The possibility of taking many pictures without having to reload the camera is always an additional asset."

### A PRECISION CAMERA FOR EVERY TYPE OF PHOTOGRAPHY

LEICA is unequalled for speed, convenience, versatility. *Built-in range finder* coupled with lens for automatic focusing. *Focal-plane shutter* with all speeds from 1 to 1/500th second, including all *S-L-O-W* speeds. 11 Interchangeable Lenses, including speed, wide-angle, tele lenses, and others.

Uses Cinema film; clear enlargements up to 12 x 18 inches or more. Price \$99.00 and up.



U. S. Patent No. 1,960,044



Write for free  
illustrated  
booklet.

E. LEITZ, Inc.  
Dept. 663  
60 East 10th St.  
New York City

monarch and combed his fingers through its deep, soft fur. Then he looked at Jack and smiled. "It was a lucky thing for me—that you fetched that tripod along! A camera does beat a gun—even for hunting mountain lions!"

Joe Dorris was assistant cameraman with the Burroughs-TARZAN Enterprises, Inc. which has been filming "The New Adventures of Tarzan" in Guatemala.

The photograph used to embellish the notice of the National Alliance Show at Art Center School, which appeared in THE INTERNATIONAL PHOTOGRAPHER, for February, was from the collection of Anton Burehl, 480 Lexington Ave., New York City.

# ROY DAVIDGE FILM LABORATORIES

...  
An Exclusive "Daily" Laboratory  
...

Quality and Service

6701-6715 SANTA MONICA BOULEVARD  
Granite 3108



While shooting on the location of Columbia's "Carnival," Mr. Lee Tracy, himself a camera connoisseur and enthusiast, inspects and approves the new Akers camera. Other shots illustrate the camera's versatility.

# The Akers Camera in Production

By WALTER BLUEMEL

"The proof of the pudding is in the eating," goes the proverb, which might well be revised to read: "The proof of the camera is in production." No matter how good a camera may be theoretically or in looks, it is of little value if it does not perform satisfactorily in production. When I wrote my last account of the new Akers Camera for the *International Photographer* it was still in more or less of an experimental stage, and, although the original model of the camera had shown great promise during two years of use, the new and considerably improved model had not yet been tested. Since that time, however, it has been tried in almost all production conditions that the average camera of its type is likely to encounter, and has thoroughly lived up to what was expected of it. Since the preliminary adjustments and tests have been made it has not been disassembled for repairs, yet it is working better today, after about three months of almost continuous use, than when it was first tried.


The Akers Camera has been used on a number of productions with success. On a big state fair set for a major picture some excellent atmosphere shots were obtained by using it both on the Akers Tripod and as a hand camera and shooting the crowd from various angles while the Mitchell camera photographed the principle characters. This, of course, resulted in a distinct time and money saving, as it did away with the necessity of making separate shots of the crowd used as background to the principle action. One man easily carried the Akers camera among the crowd and was able to make several setups during one shot with the big camera. There was little danger of getting in the scene shot by the other camera because its small size makes it unnoticeable in a crowd, or, if it were seen it would be mistaken for an amateur camera, which would hardly be out of place in most any crowd. One man can easily handle the Akers camera and get places with it where several men would have difficulty getting the larger cameras. It was used to obtain a number of stock shots for Columbia's "Carnival," which saved tying up the regular heavy studio equipment, a camera crew, and, perhaps, a camera truck.

Originally the film gate of the Akers camera was so adjusted that when locked in place it left only enough room for a standard thickness of film to pass through. This made it impossible to use spliced film, however, so a spring was added which made it unnecessary to lock the gate (giving, also, added foolproofness) and permitted

spliced film to go through, the spring compensating for the increased thickness. Where cost of film must be kept at a minimum shortends and spliced film may thus be used in the camera, as was done with a short private picture on modern architecture, using several makes of film, with good results.

The independent producers of Hollywood have found the camera thoroughly satisfactory for many of their regular production shots, even as a sound camera. Burton King and Willis Kent are among the producers who have used it, both as an auxiliary camera for special stunt shots and as a production camera for retakes and added scenes. Pauline Stark, who at first was very skeptical about the camera, showed much interest in it after she saw the pictures taken with it on the screen. Many others who have seen the camera have also expressed interest and approval in it, especially after seeing the results on the screen.


The Akers camera was first used as a sound camera for making screen tests for an independent picture, "The Tia Juana Kid." With a standard synchronous motor linked to the camera by a flexible cable and a simple home-made "barney" covering over the camera it was silent enough to shoot closeups in a studio without camera noise from it being picked up by the microphone. The screen results left nothing to be desired, both from a photographic and sound standpoint, in spite of the fact that the sound motor and cable used made more noise than the camera itself. The barney, too, was by no means as




**EVERYTHING  
PHOTOGRAPHIC**  
for Professional and Amateur

New and used. Bought, sold  
rented and repaired. Designers  
and manufacturers of the  
H.C.E. Combination Lens  
Shade and Filter Holder  
for any size lens.

Send for bargain catalogue  
**Hollywood Camera  
Exchange**  
1600 Cahuenga Blvd.  
Hollywood  
Tel.: HO-3651  
Cable:  
**HOCAMEX**







sound proof as it might have been. Even with a wild motor and without any covering whatever the camera is silent enough so that it was often used at the same time sound was being recorded.

This production proved an excellent picture for testing the Akers camera under regular production conditions, and a number of scenes were especially planned for it. Being a western type of picture it was naturally full of action, and the camera not only was useful as an auxiliary camera to cover difficult action and stunts from two angles, but especially to obtain effective angles which, if obtainable at all by a big camera, could have been obtained only by an expenditure of considerable time, which the short production schedule common to most western pictures did not permit. For instance, in a big fight in a saloon set I took the camera up on a light parallel and got some shots which made excellent cuts to increase the speed and effectiveness of the fight. In this scene, as in others where it was desired to increase the speed of action, undercranking was readily permitted by the rheostat controlling the motor speed. The camera was shot wild and without a silencing cover, though sound was being recorded.

The light weight of the camera proved to be of value a number of times where a fast setup was necessary or where no tripod could be used. In one instance I carried the camera up a fairly steep hill and had it set up to get a longshot of a stagecoach riding through the scene before the director had finished giving his instructions to the stagecoach driver and the cameraman on the big camera, thus avoiding the delay which would have been necessary to set up heavier equipment. A pictorial longshot of the stagecoach was obtained from the hilltop, while the other camera got a closer shot.

On location in Tia Juana the ease and speed with which the camera can be set up again proved its worth,

for we happened to hit cloudy weather and had to grab a few scenes in a hurry before the sun again disappeared. Had we taken the time to set up the big camera we would have missed some good shots, for, having no booster lights, we naturally needed the sun.

One scene required the camera in a tree to get the hero as he jumped out of the tree on a speeding stagecoach, and as no tripod could have been used without constructing a special platform the hand-held camera was indispensable. For low setups the hand-held camera was also used, and by resting the handle on the ground it could be held very steadily. In this way several shots of horses' hoofs and stagecoach wheels and some very good effect shots of the three principle characters riding by on horseback were obtained. A worm's eye-view is always effective for that type of scene.

In one important scene in which the bandits drive a herd of cattle out of a corral the Akers camera was held in the doorway of the barn adjacent to the corral, and intimate action closeups of the stampede shot while the big camera got the longshot from the opposite angle. The shot with the little camera proved the most satisfactory, as it took the audience in among the cattle.

On the recently completed feature, "Sea Devil," the Akers camera shot some 4,000 feet of film, much of which could not have been obtained with a regular studio camera. Most of the scenes were taken aboard a little fishing boat, where space is naturally limited. Some of the most effective angles were to be obtained only from positions where it was impossible to set up a tripod, so the Akers camera came to the rescue. Sometimes the cameraman would hang with it over the side of the boat, sometimes in the rigging, sometimes lying on his back in a rowboat shooting up on the larger boat—in short, the camera could be shot from any position a man could get

(Turn to Page 28)

## The Mechanical Needs of the Industry

### Manufacturing Motion Picture Equipment

Developing Machines

Laboratory Equipment

General Machine and Engineering Work

Under Water Camera Equipment

Special Projection Equipment

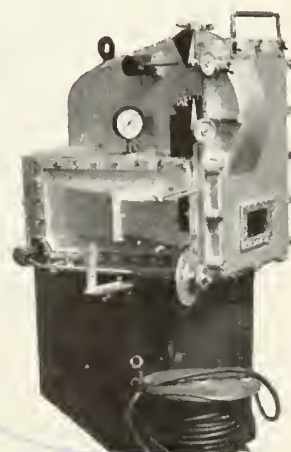
Synchronizing Devices

Optical Printers

Camera Booms

Miniatures

"Props"



Under Water Camera Blimp

# H. W. HOUSTON CO.

1041 NO. SYCAMORE AVE., HOLLYWOOD, CALIF.

HEmpstead 6732



# The Language of the Movies

By EARL THEISEN  
Associate Editor

At the moment she was having difficulty getting up the hill. She, a roly-poly darkie-woman, was on roller skates doggedly pushing up the grade over Cahuenga Pass outside Hollywood on her way to Universal Studio. Negroid joints could almost be heard to creak from the effort of each uphill stride, for she was certainly a determined darkie and evidently late for an appointment.

While she swung along, a makeup kit in her hand swung like a pendulum keeping time with her skating strides. The darkie was "goin' to town," which, I suppose, is the shortest possible studio slang that describes her determination, her ingenuity in using roller skates, the fact that certainly she would get there and the fact that, even though the sun was shining rather uncomfortably warm, the present mundane things meant nothing to her in comparison to the anticipated moments at the end of the journey.

Likely the darkie was "speekin' a job," which is just another way of saying she was looking for a "part" or job. Extras use the term "speekin' a job," for the frenzied activity and the mad dash to the studio after they hear that a number of extras are being picked from a throng at the casting office gate of the studio rather than through the regular channels of the Central Casting Office. The term is the superlative for competition, for hurriedly changing clothes so as to be "right" for the scene to be "shot", for the throwing of clothes helter-skelter in the hurry to be first at the studio, for the gnawing doubts and for the heartache that comes with failure. Even though the extra rushes carelessly and madly, he often fails, or as it is said is "scooped." One day I noticed an extra, who had at one time been famous, coming out of a casting office gate. In her eyes were woeful tears. She said, simply: "I was 'speekin' a job'."

The phraseology of the motion picture is a lingual short-cut, and is very rich in connotative meaning. There is nothing trite or stale in the use of words in the movie studios. It is true the words are slang and barbarisms, but on the sets, making the meaning clear is first and foremost; however to an outsider the conversations are often about as obscure as that of a foreign language. To the studio worker, however, one word will often say as much as a whole flock (there I am that way too) of conventional words. If you were a studio employee on a set, which would you rather hear from the director or cameraman? "There is a 'hot-spot' on Miss Ralston's shoulder," or a torrent of words and explainings such as: "Dammit, (or perhaps please) that and that light must be softened down; this one moved because you see there is entirely too much light on the Ralston shoulder, which, as you know, will photograph too light which will draw the attention of the theater audience away from her face to the 'bright spot' on her shoulder."

The head electrician who would order the light

changed is called the "gaffer." He could call to his "best boy," his first assistant: "Change that 'rifle' and give me a 'cello'." That would be all the orders necessary to start about six men to eliminate the "hot-spot." The "rifle" is a spot light usually placed on the "cat-walks"; the "cat-walks" are platforms and walks that are built at a dizzy height overhead above the setting, usually being built as part of the "sound stage." The "cello" which the gaffer asked for is a sheet of celluloid with frosted surfaces mounted in a wooden frame. When placed over the front of the light, it acts as a diffuser.

A "bon-bon" is a large round spot-light of 2000 watts; the "cracker-box" is 500 watts; the "broad" is a light bank used overhead to illuminate the set; a "baby" is a small spot-light; a "twin" is a double light used for a wider beam of illumination. There are lights called "go-devil" (similar to the 2000 watt bon-bon), "5k" (five kilowatts), "strips" (having four 1500 watt lamps), "sky-pan" (five kilowatt lamp placed so as to evenly light large wall surfaces), "gim-watts," and "orange-peel" (shallow 1500 watt light for lighting flat surfaces), "mamma Dietz," and "square-heads," (four 1500 watt globes used in broad intense illumination), "18 inch," "twenty-fours," "thirty-sixes," and many, many others. "Save it" means switch off the lights.

The term "inkie" derived from incandescent (globe) is termed "soft light" in distinction from the "hard-light" obtained from the arc light. The arc light is "hard" because it has more blue light which gives a harder and more sharply defined shadow, while the "inkie" has more orange-red content which throws a softer shadow.

The globes used in the "inkies" are called "eggs" at Paramount Studios and "bottles" at Universal.

Of course many of the lights have very inelegant names too, but I won't go into that.

Yesterday, I went over to the Universal Studio to wander around in order to refresh my memory and collect the material for this article. My intention was to wander by myself among the gangs at work, unknown to them, but before long, I found I had to have an interpreter. Yes, sir.

A gang, known as the "rigging gang," was placing the lights and cables, preparing the set for the picture "Mr. Dynamite," which stars Edmund Lowe and Esther Ralston. Standing on the set was the "stand-in," the double

Scheibe's FILTERS

In World-Wide Use

produce Moonlight and Night Effects in Daytime-Fog Scenes-Diffused Focus, and many other effects With any Camera - In any Climate

**George H. Scheibe**

ORIGINATOR OF EFFECT FILTERS

1927 WEST 78TH ST. LOS ANGELES, CAL.

SINCE 1916

HOLLYWOOD STUDIOS USE THEM IN EVERY PRODUCTION



for Miss Ralston. While the "stand-in" patiently posed, the lights and set appurtenances were arranged for the next scene between Esther Ralston and Edmund Lowe. Overhead on the "cat-walks," men were moving lights. On the floor, lights were also being shoved and hurriedly arranged. Everywhere men, hairy chested ones, were rushing, hurrying, jostling each other, and walking over each other like a swarm of ants when their nest is disturbed. There was not time for excuse-me, or pardon-me, nor did I hear any, although there were a few disparaging looks cast by a victim at a receding husky form who had just collided with the victim. Perhaps "hard-looks" would describe them better.

Over the hum of the activity was a constant babble of talk and orders. Here could be heard, "throw a baby on her," then someone would say "move the gobo in," or "how's the high stuff." I wondered what a "gobo" and "high stuff" was; a "gobo" is a shield of black cloth, or compo board, used to prevent the light from hitting the camera or certain portions of the set. A "gobo" is also at times called a "nigger." "High stuff" is the lighting equipment on the cat-walks.

"Can you get the duck nearer" meant, the microphone was too far away. The microphone—pardon me—the "duck" is hung on a "boom," which can hold the microphone above the players heads out of "camera-lines" and at the same time move it about to follow the movement of the players. A "duck" in some studios is called a "mike." A "mixer" is a sound man who increases or decreases and blends the various sounds during the filming of a scene. A "whistle-box" is a device used on an arc light to eliminate the hum of the arc.

You don't put the milk in the ice-box in a studio; instead the camera is put in the milk because the milk is a sound-proof box used for silencing the camera mechanism. "Dolly" isn't an extra girl; instead it is the wheeled platform on which the camera is mounted for moving shots.

A "butter-fly" is a gauze-covered hoop that is held over the heads of the players for diffusing the sun light in out-door shots, while a "century" is a standard that is constructed so as to hold a shade at any angle.

When I heard someone at Universal say, in the manner of authority, "Go over and strike Whale on eighteen," I thought now here is something I can understand and like to see. Imagine, to my bloodthirsty chagrin, it was only instructions to the gang-foreman to dismantle Director James Whale's set on sound stage number eighteen. "Striking a set" is tearing it down, or in other words, it is taking the "toe-nails out of the flats and storing them." "Toe-nails," I might explain, are nails that have two heads and can only be driven in the wood to the first head; the second head being hooked by the hammer to expedite the removal of the nail when the set is to be torn down—pardon me again—I mean "struck."

"Flats" are pieces of rectangular material which fit together in making the setting. The studios have groups of flats from which in a few moments are made millionaire homes, or another group of "flats" that when nailed together is an Irish shanty, others are New England homes, or perhaps a poor man's hovel. All the "flats" including doors and windows, go in groups and fit together like a mail-order house. They are kept in "flat-buildings" which are really square buildings or sheds that house the "flats", if you can gather what I mean.

When the settings made of "flats" are put together, they are papered in keeping with the scenes to be shot on that set.

The "fly-squad" is the gang which helps the set dresser move the furniture and arrange the set. No, they don't

kill flies, but I've watched some of them work and flies could be killed on them. "Furniture" is the large prop, while a "hand-prop" is the small piece such as a vase, picture, and such small atmospheric items. "Sweetening a set" means adding frilly, feminine things.

The language of the motion picture is indeed a strange one. No one seems to know from where the words come; they just grow.

Occasionally some incident happens that gives some mechanical gimmick a nickname; perhaps some device is developed for a particular star such as the "Lupe" light named after Lupe Velez because it was made specially to light her picture. The "niggers," used to prevent the set illumination from spreading to unwanted places, were called "niggers" because they were black until one day a noted negro actor played on a set. From that day on "niggers" also had the name, "gobo."

So on and on, a visitor on a set if he wanted to understand everything that was said would most certainly require an interpreter.

## The Last Word

In Sound Recording

### THE NEW PRINCIPLE MINOR QUARTZ OPTICAL UNIT

becomes an integral part of your sound recorder—this unit is cemented into a steel block—it focuses a beam of light of great intensity and actinic value a distance away and on the film, which PROVIDES CLEARANCE and PREVENTS SCRATCHING of the sound track. The width of the beam of light measures from .0005" to .0008" as it strikes the moving film.

Send for details and specimen of sound track.

**C. C. MINOR**

1835 Whitley Avenue

Phone: GR. 1781

Hollywood



## CAMERA & PROP RENTALS

Camera Supply Co.

1515 Cahuenga Blvd.

Hollywood, Calif.

Ruddy Geraus, Manager  
Gladstone 2404

Nite Phone GLadstone 6583  
Cable Address — "CAMERAS"

# In the Land of the Winged Serpent

**"TARZAN" CAMERAMEN SURMOUNT DIFFICULTIES**  
**Filming of New "Tarzan" Sound Movie Presents Many**  
**Problems—Entire Picture Shot in Guatemala**

By NAT G. ROTHSTEIN



The Ashton Dearholt Expedition in Guatemala for the Burroughs-TARZAN Enterprises, Inc. staging a scene in one of the imposing ruins of that marvelous country. Note the natives far up above the arch.

Seemingly insurmountable difficulties are nothing new for sound motion picture cameramen in their daily labors; in fact when one considers the strange and sometimes almost unbelievable jobs performed by news picture cameramen, the work of these experts borders on the sensational.

When Eddie Kull and Ernie Smith, cameramen of the Ashton Dearholt Expedition into Guatemala for the Burroughs-TARZAN Enterprises, Inc., were engaged for the filming of "The New Adventures of Tarzan" they made an advance study of the country, territory to be covered, roads, terrain, actinic qualities of the light at various hours of the day, etc., not overlooking inquiries as to servicing of the sound truck accompany the expedition.

After many weeks of correspondence with electrical experts in the City of Guatemala, and conferences with motion picture men who had shot silent pictures in that country, they had what they believed a fool-proof itinerary, but a sad surprise lay in store for them.

To attempt to relate the incidents, accidents, and experiences of these two intrepid movie cameramen for nearly three months in Guatemala would require a volume. Suffice it to sketch lightly a few of the situations that confronted them. To begin with, on their arrival at San Jose, the port of entry in Guatemala, the Steamship "Seattle" of the Hamburg-American Line had to anchor three miles out in the roadstead, there being no harbor at San Jose for a steamship the size and tonnage of the "Seattle."

Huge barges were provided for transfer of passengers and equipment of the Expedition to shore. Upon examination it was found that the ship's derrick was of insufficient capacity to handle the heavy sound truck. What to do? Nothing but take a chance. While the entire Burroughs-TARZAN Company held its breath, the derrick slowly raised the heavy truck, swung it over the side of the ship and began lowering away. Instead of smooth travelling, the winch let the truck down in jerks. It

looked like disaster every second. The swaying truck reached to within a foot of the deck when the boom broke and down it crashed. Fortunately nothing was broken but a couple of tubes, as the boom fell clear of the truck. The transfer of the equipment and passengers was done in a nasty rolling sea, and the removal of the truck from the barge was a classic, with the swells rolling in, the lack of derrick equipment of the proper size, etc. Messrs. Kull and Smith thought their highest difficulties were over but they quickly found their troubles had just started.

The journey from San Jose to Escuintla, a distance of between fifty and seventy-five miles, was a nightmare, over roads that hounded the truck off the ground most of the way. A tightening process of all chassis, bolts, nuts, etc. had to be undergone. Even that experience was slight compared to the climb up the steep mountain grades to Chichicastenango, and still worse up to Lake Atitlan.

"In some places," stated Eddie Kull, "the roads were so narrow that had we met an oncoming vehicle of any kind, one of us would have had to hack up many miles or else—and," added Kull, "it would not have been me. We had to pull it in low gear most of the way up nearly 6,000 feet, with many stops to cool the engine, while Smith sat inside of the truck holding his breath, hoping against hope nothing would be smashed. But the going up was a cinch compared to the coming down. In low gear all the way with some spots of such sheer declivity that even with emergency brakes set, the engine in low gear and foot on the service brakes, it was all we could do to hold the truck back.

"At one spot the truck got away from us momentarily," stated Kull, "and we were headed to what looked like sure disaster, but again our luck held when in a turn in the road that we negotiated with our hearts in our throats, we came up a small rise that enabled us to stop the headlong speed of the vehicle."



Eddie Kull, at the camera, and Ernie Smith directing a close-up while the rest of the crew and the actors look on. It is the Ashton Dearholt Expedition in Guatemala, for the Burroughs-TARZAN Enterprises.

"If once," stated Smith, "at least a dozen times it looked like 'curtains' over those roads, up and down those terrible grades, but we came through O. K. though both  
 (Turn to Page 28)





## Shooting TARZAN AND THE GREEN GODDESS



Photos courtesy Burroughs-Tarzan Enterprises, Inc.

## For use in the wilds of Guatemala they chose G-E MAZDA Photoflood lamps

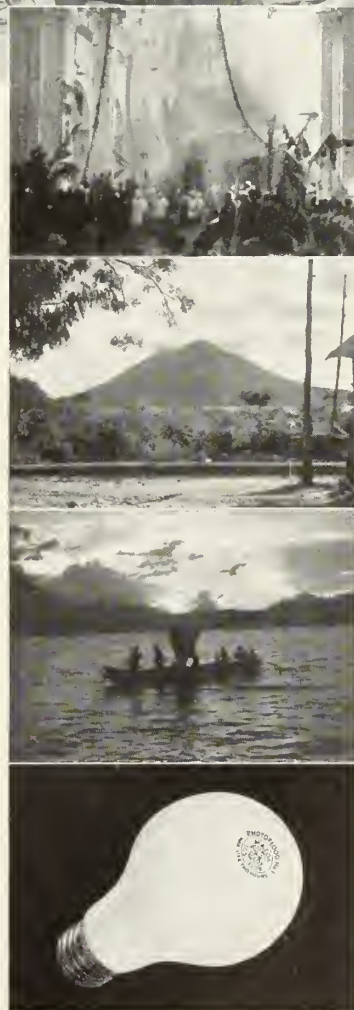
ON December 2, 1934, the Ashton Dearholt expedition sailed for Guatemala to shoot the story of *TARZAN AND THE GREEN GODDESS*. With them went all the equipment necessary to equip completely an entire sound picture studio in the wilds of the tropics.

Every piece of equipment had to be transported through the jungle on the backs of native porters, hence each piece had to be vital, and as light in weight and as portable as possible. In addition it had to be "sure fire."

For interior and supplementary lighting, they took along General Electric MAZDA Photoflood lamps. No other light source met their requirements as well. These lamps provide a wealth of light from comparatively little juice . . . which meant less weight and size necessary in the portable generator. They also made possible the use of light weight, compact reflecting equipment. And they are completely reliable.

More important to you than the usefulness of G-E MAZDA Photoflood lamps to an expedition in the jungle is the point which this story illustrates so well: *General Electric makes lamps to meet every lighting need of the cinematographer.* Are you benefiting fully from their ability to help make better pictures? General Electric Company, Nela Park, Cleveland, Ohio.

**GENERAL  ELECTRIC**  
**MAZDA LAMPS**



## IN THE LAND OF THE WINGED SERPENT

(Continued from Page 26)

Kull's and my nerves were pretty well shattered.

"But the roads were the least of our troubles,—what with keeping the batteries charged, miles from any such thing as a charging station, or a repair station of any kind or character for truck or equipment. Twice we smashed booms, once breaking a 'mike' for keeps. That, with some of the camera positions located high up in trees, in shooting Tarzan's swings from branch to branch, we never knew for one minute to the next what might happen to camera and equipment.

"Then, too, in spite of our thorough advance studies of light qualities in that tropical land, we found conditions more tricky than could have been imagined. Our first test stills, though to our estimate undertimed, were over-timed. Then the actinic quality of the light in the high places six thousand feet up in that clear and rarified atmosphere had us constantly guessing, the varying quality being greatly different than conditions met in California in both high and low spots. Even sunset shots with the light seemingly so dim it seemed a waste of time trying to

shoot, we found the light gave unusually beautiful effects."

All in all the equipment came through the stiff test with flying colors aside from a few mishaps, so to the bird who once said: "There's nothing new under the sun!", both Eddie Kull and Ernie Smith reply in the same breath—"Oh, yeah!—just try making sound motion pictures in Guatemala!"

"The New Adventures of Tarzan" will be released in two versions, one a complete 7-reel feature, the other an eleven episode chapter play of 2-reels each. Release date is announced as April 15th. Herman Brix, world famous athlete and Olympic Games Champion plays TARZAN.

Nearly four months were required by the Ashton Dearholt Expedition for the filming of the production, in the most picturesque spots of Guatemala, that little-known country of scenic grandeur.

The TARZAN troupe expects to return from their thrilling and never-to-be-forgotten trip on or about March 15th.

## THE AKERS CAMERA IN PRODUCTION

(Continued from Page 23)

into. It was also set up in a motorboat for a number of scenes. Much of the exciting action was made more vivid in this way.

On the jungle set we used the camera for longshots of the South Sea village, closeups of a native dancing girl and the native audience, and several other odd angle shots which time would not have permitted to be made separately with the Mitchell camera, but which added considerable production value to the picture. On the screen the shots made with the Akers camera were indistinguishable, so far as steadiness and photographic quality is concerned, from those made with the Mitchell camera, which, after all, is the final proof of the camera.

Besides regular feature productions I also used the Akers camera on a number of special jobs, among which was a professional football game and a blood transfusion operation. The operation was staged, in order to permit moving the Bell and Howell camera also used, but the ease of moving the Akers camera suggested to me its value in filming actual surgical operations, where the doctors cannot stop for the cameraman and the cameraman must get his shots without interfering with the doctor. The ease and speed with which the camera can be focused is also an important factor in filming operations and similar subjects where the cameraman must frequently and quickly change his position.

The Akers camera should prove an innovation for news and sports cameramen, as was indicated to me in shooting the N. Y. Giants - Chicago Bears professional football game at the Gilmore Stadium. Using it as a hand camera, with the small "B" batteries hanging on my back, I was able to follow every play of the game from the most advantageous angle, and got the intimate shots of fast plays which the stationary cameras missed. By being able to stick close to the sidelines or behind the goal posts I got some very novel and effective action closeups, with the players running directly into the camera. Low camera setups were very easy, simply by resting the camera handle on the ground for a steady support. In this way I got some interesting shots looking between the referee's or lineman's legs. I also did a little candid camera work, getting closeups of players and celebrities on the bench, without their knowing it.

Having been tried and proven satisfactory in actual production during four months of almost daily use, on every type of production work the new model Akers camera is no longer in the experimental stage, but has lived up to its expectations, in fact, exceeded them and promises to be an invaluable addition to the field of motion picture photography. The industry's acceptance of the new camera has brought such a demand for cameras that the Akers Camera Co. has opened new shops at 7-14 Santa Monica Blvd., Hollywood.

## THE BOSTON CAMERA CLUB FOURTH SALON

The Fourth Salon of the Boston Camera Club will be held from June 18 to 29, 1935, in the gallery of the Boston Art Club, Dartmouth and Newbury Sts., Boston, Mass., U. S. A.

The aim of this exhibition is to exhibit works of photography which show a distinct evidence of personal artistic feeling and ability.

Four prints may be submitted by any contributor.

Each picture must bear on the back the name and address of the maker and number and title of picture to conform with the entry form. The sale price, if any, must appear on the entry form only.

A commission of 15% will be charged on any print sold.

The entry form with a fee of \$1.00 must be properly filled out and mailed separate from the prints to the Boston Camera Club, 330 Newbury Street, Boston, Mass., U. S. A., and must be received prior to May 22, 1935.

Foreign prints must be sent postpaid to the Boston

Camera Club, 330 Newbury Street, Boston, Mass., U. S. A., to arrive before May 22, 1935, using the printed label with the notation: "Photographs for Exhibition Only. No Commercial Value. To be Returned to Sender."

Foreign prints should not be larger than 30x40 cm. in size and should be sent unmounted, mounting being done by the committee.

All prints will be exhibited in 16x20 frames under glass, and all American prints must be mounted on 16x20 light colored mounts to hang vertically.

All possible care of prints will be taken, but no responsibility is accepted by the Boston Camera Club for loss or damage in transit or during the exhibition.

Unless otherwise specified, permission to reproduce is assumed. No reproduction fee will be paid.

The prints will be returned promptly after the close of the salon.

A catalog will be sent to each exhibitor.

In case of an unforeseen contingency the committee's decision will be final.



# A Voice From India

By GURU D. LAL, S.M.P.E.

*Sound Engineer (R.C.A. Inst., N. Y.). Residence, Bombay, India. Written for International Photographer.*



THE motion picture industry in India has made good progress during the past four years. It certainly is good and creditable from the point of view that our technicians had to grope in the dark and had learned by the trial and error method.

In the absence of good technical schools and colleges and a lack of contact with the latest scientific, electrical and mechanical developments of the West, especially of America, they have struggled hard to get results from the equipment they imported.

Naturally we were and are so far backward in the art of pictures and showmanship and the high import duties, which run up to thirty per cent, besides the local taxes, have retarded our progress.

Under these conditions there were three courses open to us to build our industry:

- (a) To employ foreign technicians;
- (b) To send our boys out to study the various phases of the industry;
- (c) To obtain information through the suppliers of the various equipments, etc.

As soon as the first Indian talking pictures appeared in the theatre business the silent pictures and the other entertainment came to a standstill. The trade conditions all around were very poor, and so, finding money in the talkies, every Tom, Dick and Harry rushed to produce talking pictures. Without knowing anything of the complications of the sound, they ordered any odd makes of recording outfits and started making "talkies." Naturally, for a new venture like this, the price was the main question. They therefore bought the cheapest outfits. Even now, on account of lack of sufficient funds and the lack of response from the major manufacturers in the United States, India is full of "hoot-leg" equipments, the majority of which is unsuitable to our local conditions.

Furthermore, due to the absence of any central organizing body or unions, there crept up a "cut throat" competition and "star gambling."

Naturally, the services of a foreign qualified technician was, and still is, much beyond the bank account of any individual producer, and moreover, the people in the United States and on the Continent have a very poor conception of the actual living conditions. Living in India is cheap, on the whole. The value of a rupee in India is almost the same as that of a dollar in America. Yet we have to pay roughly three rupees for the same dollar. Thus it will be clear that to expect the people of India to pay salaries equivalent to American salaries is prohibitive.

Quite a number of boys from India came out to America and the other countries to study this industry and a majority of them got into the clutches of hogus institutions; furthermore, it is much too difficult for any pri-

vate school to impart any practical and useful knowledge or training on a vast subject like the motion picture. However, they all obtained their diplomas from their respective institutions. Quite a few of the boys tried to get into some studios, but they found the doors shut, hence they had to go back home, a little wiser, but useless as far as taking a responsible part in building the industry was concerned.

Since most of the outfits are "boot-leg" stuff, the poor fellows acquired more of a "salesman" talk than any practical technical hints and information. The major companies have evidently not yet realized the possibilities of the Indian market and as such their valuable advice is not available. Most of the would-be customers are simply frightened out of their wits at their quotations.

Though there are some standard outfits in actual use in India, the results obtained are far from satisfactory, not because of the faults of the equipment, but because of the incompetent men handling them. Their various hooks of instruction are all right for those who know the fundamentals perfectly. To my mind, a certain amount of pride and vanity on the part of our technicians prevents them from asking for more detailed information and tips from those manufacturers who are in a position to offer some valuable advice.

To date there are about eighty-five producers in India, and honestly speaking, there are hardly half a dozen men who could be called technically minded technicians, and the actors and directors belong to the old school of theatrical art. Most of the silent day directors are still in the field and doing whatever they can with the trial and error method. The cutters are having a tough job with the sound track, synchronizing, etc.

The atmosphere around the studios, until recently, had not been such as to be attractive to the educated and refined men and women who might come out into the field. It is needless to say that with all these conditions and environments the majority of our productions fell far short of the expectations of the intelligent and respectable people. Of course, from the American standard, they were just "lousy." However, within the last few months some new companies have been floated and things look brighter, but even these will find it difficult to make a really good picture in the absence of fully qualified technicians.

I am sure that with a little more co-operation between America and India we will not only rapidly improve our industry, but there will be bigger and better social relations and business. The manufacturers, etc., will have more sales; the producers here will find it cheaper to get some background shots, etc., made for them by our producers in India, and thus get real authentic pictures. I hope the day is not far off when the two great countries will find a more harmonious relation to their mutual advantage and the world peace.



# INTERNATIONAL CLASSIFIED ADVERTISING

Brings results—Rates 45 cents per line—minimum charge one dollar per insertion. For Rent—For Sale—Wanted—For Exchange, etc.

## FOR SALE AND RENT—CAMERAS

**FOR SALE OR RENT**—Mitchell and Bell & Howell silenced cameras, follow focus. Pan lenses, free head, corrected new aperture. Akeley, De Brie, Pathe, Universal, Prevost, Willart, De Vry, Eyemo, Sept, Leica. Motors, printers lighting equipment. Also every variety of 16 mm. and still cameras and projectors. B & H Cameras with old type shuttles silenced \$150. Everything photographic bought, sold, rented and repaired. Send for our bargain catalogue. Hollywood Camera Exchange, 1600 Cahuenga Blvd. Phone HO. 3651. Cable, Hocamex.

**BELL & HOWELL** Professional Motion Picture Camera complete with 35—40—50—75 mm. lenses and Mitchell tripod legs. Also Akeley Camera complete with 2 in., 6 in., 17 in. lenses. Mervyn Freeman, 1960 South Vermont Ave., Los Angeles, Calif. Phone: REpublic 3171.

**EDUCATIONAL CAMERA BLIMP** and Dolly for Mitchell Camera follow focus device, geared free head, three wheels, pneumatic tires, cost \$1250.00, special \$500.00. Hollywood Camera Exchange, 1600 Cahuenga Boulevard, Hollywood, Calif. Cable HOCAMEX.

**GENUINE BELL & HOWELL** 1000 foot magazines in excellent condition \$50.00 each. Four hundred foot magazines \$25.00 each. Four hundred foot Mitchell magazines \$25.00 each. Cases for above \$10.00 each. Hollywood Camera Exchange, 1600 Cahuenga Boulevard, Hollywood, Calif. Cable HOCAMEX.

## FOR SALE—CAMERAS AND EQUIPMENT

**REAL BARGAINS** in 16 and 35 mm. movie equipment and still cameras. Newest types cameras and projectors in all popular makes. Save money on film, lights, lenses and all essential accessories. Our 36 years of experience stands back of every sale. Before you buy, send for our new bargain booklet. Burke & James, Inc., 223 W. Madison St., Chicago.

**DUPLEX PRINTER**, Mitchell 400 foot magazines, Mitchell tripod legs; Mitchell pan and tilthead; Mitchell motor adapter; No. 5 stand 60 inch flexible shaft; B. & H. tripod adapter block; 4¼ inch F:2. Cooke Kinic lens; 6 inch Busch F2:5 lens and other miscellaneous equipment. Ed Estabrook, 430 North Flores St., Hollywood. OR. 5003.

**LIKE NEW**, Educational Camera Blimp, geared free head, follow focus device and three-wheel dolly. Cost \$1250.00. Our special \$500.00. Hollywood Camera Exchange, 1600 N. Cahuenga Blvd., Hollywood, Calif.

**MITCHELL CAMERA**, very quiet steel gears, 3 Pan Tachar lenses, Free head, complete studio equipment, excellent condition, \$1450. CAMERA SUPPLY CO., LTD., 1515 North Cahuenga Blvd., Hollywood.

**BELL & HOWELL CAMERA HEAD**, 170 degrees, three lenses, B & H tripod legs and head, beautiful condition. \$700. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

**BELL & HOWELL** and Eyemo Cameras, Lenses, Magazines, Tripods, Movielas, Splicers, all kinds of Sound and Laboratory equipment. Eastman and Dupont spliced negative, tested and guaranteed, 2½¢ per foot, on daylight loading rolls, \$2.75. Inquiries invited. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood.

**MITCHELL CAMERA**—Like new and guaranteed—silenced Academy aperture, Pan Tachar lenses, free head tripod, 1000 ft. magazines, complete \$2000.00. Hollywood Camera Exchange, 1600 No. Cahuenga Blvd., Hollywood, Calif.

## SOUND RECORDING

**LIKE NEW ARTREEVES** portable double head sound recording outfit, with Bell & Howell silenced camera, complete in every detail. A Real Bargain—\$3500.00. Price without camera—\$2500.00. Hollywood Camera Exchange, 1600 North Cahuenga Blvd., Hollywood, Calif.

**ART REEVES**, latest model 1935, double system sound recording installation, factory guaranteed, Automatic Speed Control Motor, Twin Fidelity Optical Unit, Bomb microphone, the only genuine, modern, workable ArtReeves equipment for sale in Hollywood outside factory. Price, complete in every detail, \$2,400. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

**FOR SALE**—Mitchell tripod friction head—good as new. \$150. Box Z, International Photographer.

**SOUND MOVIOLA**, excellent condition, Model UC, price \$450.00; also new H.C.E. Freehead Tripod and Legs for Bell & Howell, Eyemo or De Vry Cameras—\$75.00 complete. Hollywood Camera Exchange, 1600 No. Cahuenga Blvd., Hollywood, Calif.

## FOR RENT—CAMERAS

**TWO THOROUGHLY** silenced Mitchell cameras. Follow focus device, Pan Astro lenses, Freehead—1000 ft. magazines. J. R. Lockwood, 523 No. Orange St., Glendale. Douglas 3361-W.

## THE INTERNATIONAL PROJECTIONIST

**THE INTERNATIONAL PROJECTIONIST**, a monthly magazine published in the interests of the projectionist. Interesting, instructive. Yearly subscription U. S. and possessions, \$2; foreign countries, \$2.50. James I. Finn Publishing Corp., 1 West 47th St., New York.

## WANTED TO BUY

**MOTION PICTURE**—Still Picture—Laboratory and Cutting Room Equipment—Lenses—Finders—Tripods. Highest prices paid. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood, Calif.

**WANTED**—Sound head for Powers 6-B projector—35 mm. Address Box 333, International Photographer, 1605 Cahuenga Ave., Hollywood, Calif.

**WANTED**—Mitchell camera silenced. State number and full particulars. Box X, International Photographer.

**MITCHELL OR BELL & HOWELL CAMERA**. State full particulars and lowest cash price. Address Morgan, International Photographer.

## CAMERA REPAIRING

**BELL & HOWELL** cameras with old type shuttles silenced, \$150. Hollywood Motion Picture Equipment Co., 645 No. Martel Ave., Hollywood.

**COMPLETE SET**, except two issues, INTERNATIONAL PHOTOGRAPHER last four years. What am I offered? Box GB, International Photographer.

**VERY POWERFUL FLOODLIGHTS** of new design. Will burn through a 1000 W. Rifle with Cable—\$5.00. With 12 foot collapsible Stand—\$20.00. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

**MITCHELL MOTOR**—1000 ft. Mitchell magazines. J. R. Lockwood, Glendale. Douglas 3361-W.

**FOR SALE**—75 mm. Cooke Lens. F:2 in Mitchell mount complete. 50 and 75 mm. Astro lenses, mounted and unmounted. J. R. Lockwood, 523 North Orange Street, Glendale. Douglas 3361-W.

**BUYERS READ** these classified advertisements as you are now doing. If you have something for sale or exchange—advertise it in these columns. **THE INTERNATIONAL PHOTOGRAPHER**, 1605 No. Cahuenga Ave., Hollywood.

**FOR RENT**—25 and 35 mm. lenses, motor adapters, Mitchell Standard tripod head, baby tripod, 400 ft. Mitchell magazines. J. R. Lockwood, 523 North Orange St., Glendale, Douglas 3361-W.

## POSITION WANTED

**DO YOU WANT A CAMERAMAN** who is an expert on studio production; or an expedition cameraman who knows every corner of the world; or a cameraman who thoroughly understands the making of industrial pictures; or an expert newsreel photographer; or an expert color cameraman? A limited number of cameramen, backed by years of experience, are available. Write stating your requirements and we shall be glad to assist you in choosing the kind of cameraman you want. **INTERNATIONAL PHOTOGRAPHER**, 1605 North Cahuenga Ave., Hollywood.

## MISCELLANEOUS

**COMPLETE COURSE IN FLYING**—If interested in aviation, see Roy Klaffki, 1605 North Cahuenga Ave., Hollywood.

**WANTED**—To know of the whereabouts of motion picture relics, documents, or equipment of a historical nature for Museum purposes. Write Earl Theisen, care of International Photographer, 1605 Cahuenga Ave., Hollywood.

# CINEMA QUARTERLY

The Magazine for Film Craftsmen. Included among its contributors:

Rudolph Arnheim, Anthony Asquith, Dallas Bower, Andrew Buchanan, Alberto Cavallanti, Curt Courant, Eric Elliott, John Grierson, Forsyth Hardy, Alfred Hitchcock, Eric M. Knight, Alexander Korda, Stuart Legg, Philip Lindsay, Herbert Read, Paul Rotha, Leontine Sagan, Victor Saville, D. F. Taylor, Berthold Viertel, H. Bruce Wolfe, Norman Wilson, Basil Wright.

Illustrated with unique stills.

## CINEMA QUARTERLY GETS DOWN TO FUNDAMENTALS

7s. 6d. per year from

24, N. W. THISTLE STREET LANE,  
EDINBURGH, 2. SCOTLAND.



## BELL & HOWELL SELL A SECOND BATTERY OF AUTOMATIC SOUND AND PICTURE PRO- DUCTION PRINTERS TO M-G-M

Bell & Howell, Chicago, through J. H. McNabb, President, have announced the signing of a contract with E. J. Mannix, Vice-President of Metro-Goldwyn-Mayer, for a second battery of Bell & Howell automatic sound and picture production printers for installation in the M-G-M laboratory at Culver City. This additional battery of printers will put the M-G-M laboratory on the basis of 100 per cent automatic printing on release pictures.

About a year and a half ago M-G-M bought their first battery of these production printers, and subjected them to the gruelling test of practical usage. So outstanding were the results in point of economy and efficiency of operation, as well as in quality of picture and sound reproduction, that M-G-M decided to convert their plant entirely to automatic operation.

It was found that, in addition to the faithful printing of high fidelity recording, the machines were able to pay for themselves in short order by lowering operating costs. It was established also that the ease of operation affords operators the opportunity to give all necessary attention to the job in hand, thus adding to the quality of printing results attained.

The machines of the first battery have been operated continuously on 24-hour stretches for months at a time, and so far not a single mislight or out-of-synchrony has been reported.

The Bell & Howell automatic printer is the result of practically five years of experiments on the part of the Bell & Howell engineering laboratories in Chicago. To this original research work M-G-M have now added the searching test of practical application. The machine prints both pictures and sound in one operation and is fully auto-

matic. After being set up, the negatives for picture and sound track are locked in a dust-proof separate compartment, and thereafter the machine needs only to be threaded forward or backward with positive stock at the completing of the printing of each reel. The machine stops automatically if a lamp burns out or if by chance the film breaks or the air supply fails. It is absolutely fool-proof.

One handle turns the machine forward or backward and controls the major operating factors, viz., motor, brake, air, lights, water, vacuum, tension, weights, and locks on all gates. It is impossible to start the machine if a gate is left open or if a lamp is burned out. The machine also cleans both negatives, picture and sound, as well as the positive stock at several points on its path from the feed to the take-up.

There is absolute sensitometric control of light values for any given development gamma. The control is so exact that the same negative and traveling matte can be used in any other printer of the same kind with the positive assurance of exact duplication of print densities after a preliminary setting.

In addition to the full installation of automatic printers, M-G-M laboratories have tested, approved and are installing a new Bell & Howell developing technique involving a turbulation system to overcome directional effect. This developing technique, which extends control through to the finished print, is a decided improvement over ordinary practice and reaches its full possibilities when used in conjunction with the Bell & Howell automatic printers. This combination of printer and control technique has reduced ordinary and rather elaborate methods of sensitometry down to almost fool-proof automatic sensitometric control.

## RECENT PHOTOGRAPH AND SOUND PATENTS

By ROBERT W. FULWIDER

1,987,062—Apparatus for Tinting Photographic Film. Kenneth Hickman, assignor to Eastman Kodak Co.

1,987,064—Edge Printer. Roy Hopkins, assignor to Eastman Kodak Co.

1,987,072—Photographic Band. Donald McMaster, assignor to Eastman Kodak Co.

1,987,205—Light Coupled Projector. Theodorus Nakken, assignor to Nakken Patents Corp., Forest Hills, N. Y.

1,987,387—Film Tinting Machine. Oliver Conklin, assignor to DuPont Film Mfg. Co.

1,987,406—Talking Motion Picture Projector. Russell May, assignor to Radio Corp. of America.

1,987,443—Relief Picture in Natural Colors (also Stereoscopic). Herbert Ives, assignor to Bell Telephone Labs., Inc.

1,988,069—Controlling Apparatus for Motion Picture Projection Machines. Robert Bissinger and Harold Warren, of Columbus, Ohio.

1,987,623—Motion Picture Projecting Machine for Exhibiting Improved Sound on Film Prints. Arthur J. Holman, Brookline, Mass.

1,988,812—Sound Negative for Direct Production of Sounds. Richard Schmidt, assignor to Agfa Ansco Corp.

1,988,868—Automatic Film Cutting Device. Irving Danuff and Robert Horowitz, Brooklyn, N. Y.

1,988,882—Lens Structure with Prisms. Wm. M. Thomas, Los Angeles, Calif.

1,988,891—Method of Producing Photographs in Two or More Colors. Bela Gaspar, of Berlin, Germany.

1,988,980—Safety Closing Circuit Device for Preventing Stuffing in Cinematographic Apparatus. Andre Debie, Paris, France.

1,988,981—Drive for Cinematographic Film. Andre Debie, Paris, France.

1,989,134—Shutter for Reproducing and Copying Lenticulated Films. Fritz Fischer, assignor to Siemens & Halske, Berlin, Germany.

1,989,166—Means for Automatically Modifying the Functioning of Mechanical Movements in Sound on Film Motion Picture Apparatus. Leonard Day, of New York City.

1,989,310—Safety Device to Prevent Film Burning. Max Fritz, assignor to Vereenigde Internationale Agenturen Maatschappij, Amsterdam, Netherlands.

1,989,748—Multicolor Filter Used in Taking and Projecting Photos on Lenticulated Film. Helmut Frieser, assignor to Siemens & Halske, Berlin, Germany.

1,989,754—Apparatus for Advancing Film Across a Sound Aperture. Albert Kindelman, assignor to International Proj. Corp. of New York City.

1,989,836—Optical System for Recording Sound on Film or Reproducing the Same. Stewart Whitman, Sunnyside, L. I.

1,989,963—Talking Motion Picture Apparatus. Judd Baker, assignor to Radio Corp. of America.

1,989,971—Film Checking Device for Synchronized Sound Pictures. Charles Cretin, assignor to Telefunkin Gesellschaft, etc., Berlin, Germany.

# An American Cameraman In English Studios

To the Editor: I was signed last March by London Films, Alexander Korda's organization, to work under N. Herbert Mann, who is chief special effects technician for London Films.

Since the motion picture production world already had known of Ned Mann and his many outstanding contributions to trick photography I need not introduce him further, although I should like to state that in my many years connection with the miniature and various other trick elements of production never have I seen such combined perfection in a special effects department.

Furthermore, I have never seen such a huge outlay of equipment and such large miniature sets. These sets have taken months to construct and many months prior to design.

I have not the authority of Alexander Korda to describe these sets in detail, but if I had the right to do so my story would prove most interesting. Every mechanical device and photographic effect known to modern production is being used by Ned Mann.

For the first time in picture production I feel safe to state that more methods of composite and foreground production have been employed than ever before. Mr. Mann's job in England has not been an easy one, since most of his organization and equipment had to be built from the ground up.

Building a set in England is not exactly like building one in Hollywood, where, over a telephone, one may contact any type of trained motion picture mechanic at a moment's notice.

Practically all of Mann's crew had to be trained for their particular jobs. This was very difficult and a time taking procedure. Fortunately, Mr. Mann has had the co-operation of his "Number one man," Lawrence Butler, formerly designer and builder of many Hollywood miniature sets.

Mr. Korda has a swell organized staff, most of whom are long-term Hollywood technicians. For the H. G. Wells (Korda Production) "The Shape of Things to Come" picture, there is William C. Menzies, formerly art director of many years standing in the Hollywood production field.

Mr. Menzies is acting in a dual capacity for Korda as regards the Wells production. He is chief designer of sets in direct collaboration with Mr. Frank Wells, son of H. G. Wells, who co-designs with Menzies. The latter also will direct this production. What a job Bill picked off!

A great deal of applesauce has found its way to Hollywood Boulevard about English production methods, equipment and "tea and cakes." The tea story I find is the most accurate. These "Tommies" do stop grinding

at about 11 A. M. for a cup of tea; also again at 4 P. M.

This seems to interest us "gringoes" more than what these English studio people are seriously doing and planning to do in picture production.

I might add that we also stop several times a day for a "cake"—that is of no interest, is it?

The English production units are fast catching on to making motion pictures. To say otherwise is like the bird who sticks her head in the sand. Because of their late re-entry into the production field they are reaping many benefits not always accounted for or readily noticed—for example, the modern camera with its many adaptations and applications; modern lighting and generating equipment; all of the late type optical elements and devices; special processing units—all of these various types and kinds of equipment have found their way to England in the last two years and foremost in equipping one hundred percent modern has been Korda's London Films.

Many methods employed in England could be incorporated into Hollywood production with beneficial results. For example, the extensive use of plaster-cast parts of their sets, adding extra production results for less cost in construction.

Further along this line of thought, their methods and system of light rigging is most practical and quick acting. The rigging is composed of pipes and couplings of various lengths—all interchangeable.

Many long trained American cameramen have told me that this system is most valuable in light rigging their sets. Personally, I have just completed nine months with London Films in the capacity of back-projection technician on several productions and I found the experience to be something much more than a "boat ride."

We will hear more from Alexander Korda as well as English production. One of the most difficult and at the same time interesting productions I've ever worked on was Zoltan Korda's "Bozambo." This picture was actually photographed in the wilds of the Congo country.

Space is too limited to relate the hardships suffered by Korda and his crew in shooting this picture. However, he brought back the most complete story of these African people that I ever expect to see or hear.

The sound is of outstanding value and the life of these people—Korda has it all on the film. This is only one example of what the English producer is doing.

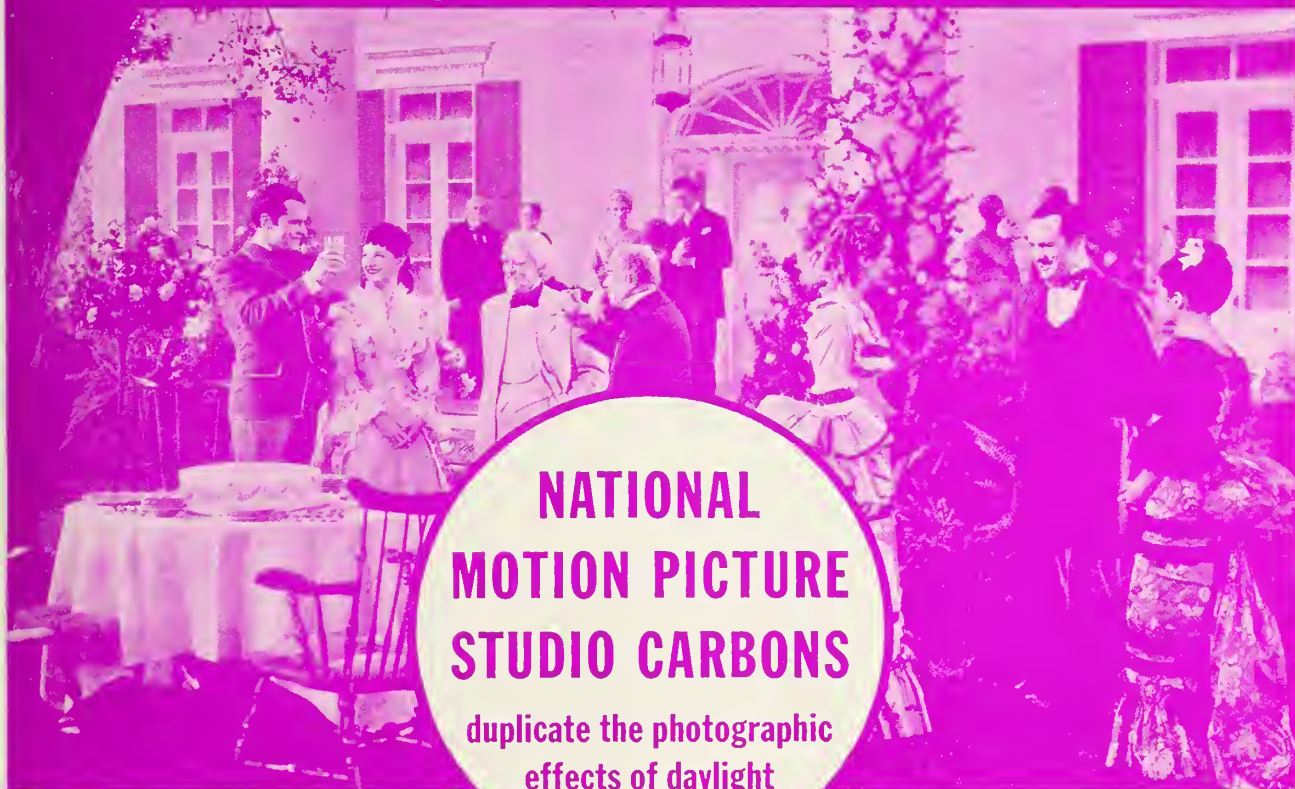
We must remember that London is in the center of Europe and travel connections are very well arranged. Within one thousand miles of London almost anything can be found for picture production, consequently with the use of modern photographic devices and processes—we will hear and see much more of England.

GEORGE J. TEAGUE.

**Mr. Charles P. Boyle, Editor of "Out of Focus" Department  
is still on vacation.**



# Photographic Effect



Scene from "The Little Colonel"  
A Fox Film Production

Technicolor photography by William Skall  
Walter J. Quinton, Studio Chief Engineer

## NATIONAL MOTION PICTURE STUDIO CARBONS

duplicate the photographic  
effects of daylight

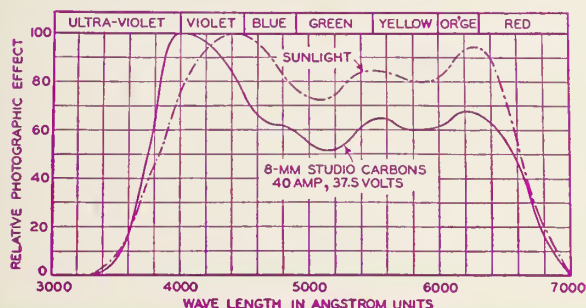
FOR COLOR

FOR BLACK  
and WHITE

LESS HEAT

MORE SPEED

SILENT, STEADY BURNING LAMPS • ADAPTED TO SOUND STAGE • PROVED BY EXPERIENCE



Photographic effect from Studio carbon arc compared with that from sunlight.

A high percentage of the radiant energy from this new studio light is concentrated within the most effective range of photographic sensitivity.

Give  
this new light  
a trial ✓

**NATIONAL CARBON COMPANY, INC.**

Carbon Sales Division, Cleveland, Ohio

Unit of Union Carbide  and Carbon Corporation

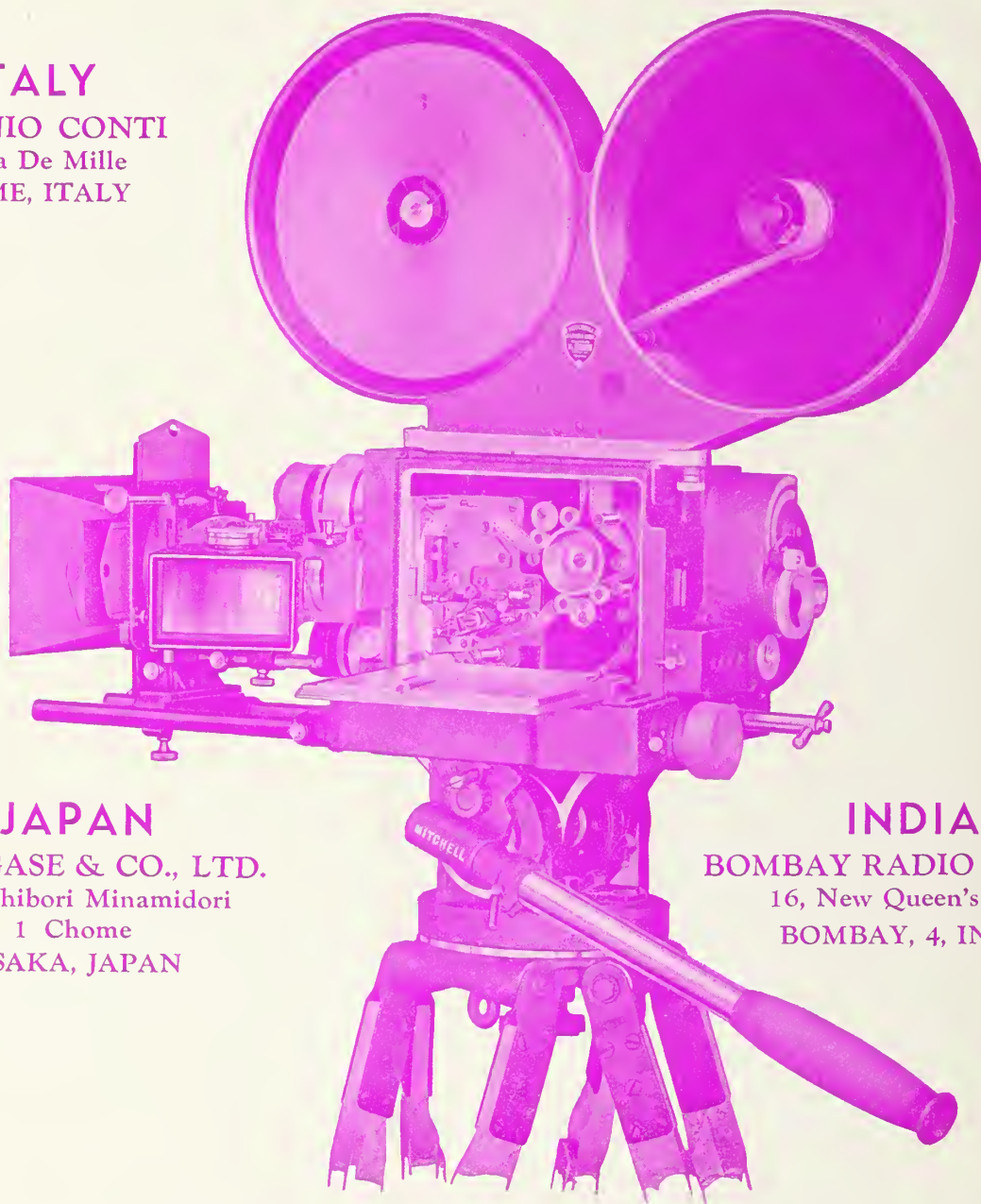


Branch Sales Offices • New York • Pittsburgh • Chicago • San Francisco

# FOREIGN AGENCIES *for* MITCHELL CAMERAS

## ITALY

ARMINIO CONTI  
5 Via De Mille  
ROME, ITALY



## JAPAN

D. NAGASE & CO., LTD.  
7, Itachibori Minamidori  
1 Chome  
OSAKA, JAPAN

## INDIA

BOMBAY RADIO CO., Ltd.  
16, New Queen's Road  
BOMBAY, 4, INDIA

## GREAT BRITAIN

JOHN H. TAYLOR  
75, Albany Street  
LONDON, N. W. 1, ENGLAND

## AUSTRALIA

CLAUD C. CARTER  
35-43 Missenden Road  
SYDNEY, AUSTRALIA

---

## MITCHELL CAMERA CORPORATION

665 N. ROBERTSON BOULEVARD  
WEST HOLLYWOOD, CALIF.

Cable Address "MITCAMCO"

Phone OXford 1051



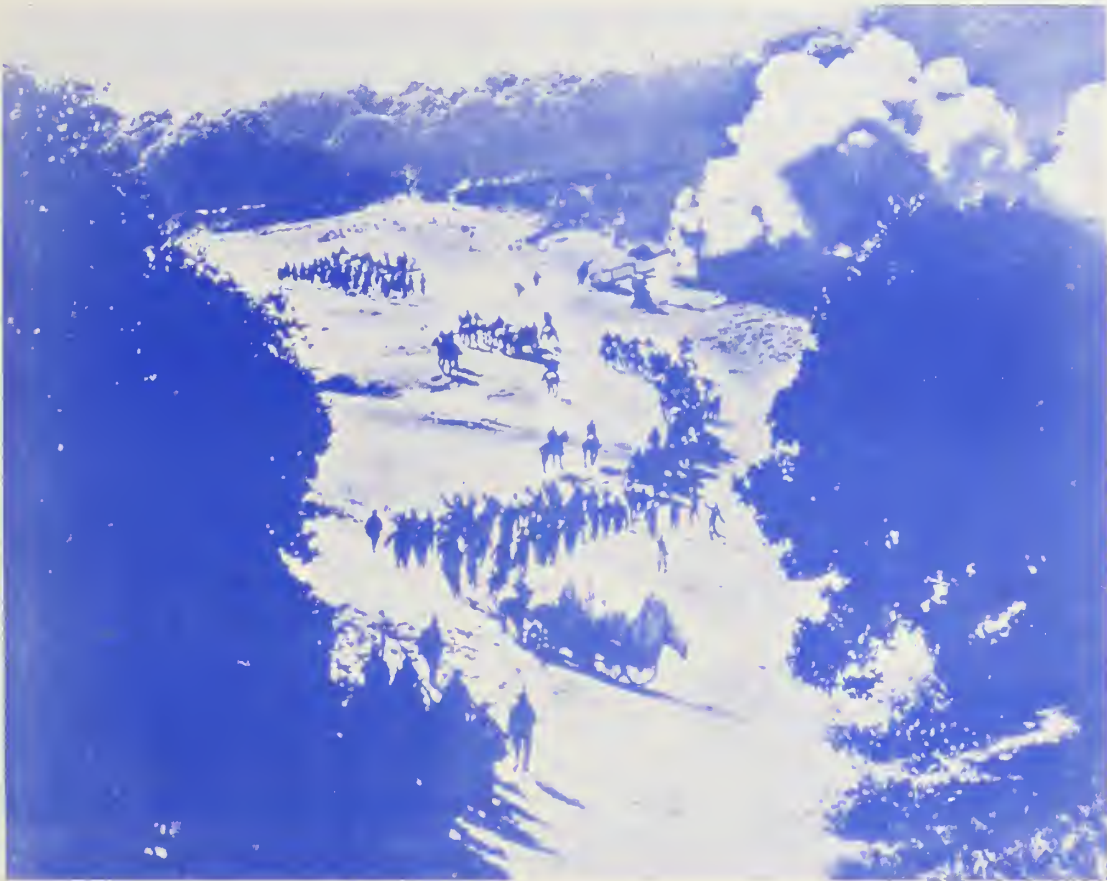
# INTERNATIONAL PHOTOGRAPHER

HOLLYWOOD

FIFTEENTH YEAR

APRIL, 1935

VOL. 7  
No. 3



A Great Scene From D. W. Griffith's Masterpiece, "The Birth of a Nation."

A shot from the episode of Sherman's march to the sea in Griffith's epochal film of the American Civil War, which was first shown twenty years ago. Note the compelling, scythe-like pattern of the line of soldiers, cutting seaward; the black masses of trees in the foreground, contrasted with the white cloud of cannon-smoke beyond; and the powerful, densely toned design created by the whole arrangement of lines, masses and movement. "The Birth of a Nation" was photographed by G. W. ("Billy") Bitzer. A story of this stupendous production appears in the present issue of International Photographer.

5 CENTS  
A COPY

MOTION PICTURE ARTS AND CRAFTS

# PRIVATE WORLDS

WALTER WANGER PRODUCTION  
• PARAMOUNT •

*With Claudette Colbert*

DU PONT  
NEGATIVE

LEON  
SHAMROY  
PHOTOGRAPHER



GREGORY LA CAVA • CLAUDETTE COLBERT

CHARLES BOYER • LEON SHAMROY

**DU PONT**

REG. U.S. PAT. OFF.

DU PONT FILM MANUFACTURING CORPORATION

35 WEST 45<sup>TH</sup> STREET  
NEW YORK CITY

PLANT . . . PARLIN, N. J.

SMITH & ALLER LTD.

6656 . . SANTA MONICA BLVD.

HOLLYWOOD, CAL.

THE  TRADE MARK HAS NEVER BEEN PLACED ON AN INFERIOR PRODUCT



# S. M. P. E.



HOMER G. TASKER

*New President of the Society of Motion  
Picture Engineers.*

Spring Convention for 1935 in Hollywood,  
May 20, to May 24. Headquarters,  
Roosevelt Hotel, Hollywood.

# INTERNATIONAL PHOTOGRAPHER

MOTION PICTURE ARTS AND CRAFTS

Vol. 7

HOLLYWOOD, CALIFORNIA, APRIL, 1935

No. 3

SILAS EDGAR SNYDER, *Editor-in-Chief*

EARL THEISEN and CHARLES FELSTEAD, *Associate Editors*

LEWIS W. PHYSIOC, FRED WESTERBERG, *Technical Editors*

JOHN CORYDON HILL, *Art Editor*

HELEN BOYCE, *Business Manager*

A Monthly Publication Dedicated to the Advancement of Cinematography in All Its Branches; Professional and Amateur; Photography; Laboratory and Processing, Film Editing, Sound Recording, Projection, Pictorialists.

## CONTENTS

Front Cover Still by G. W. (Billy) Bitzer

FRONTISPIECE - - - - -	1
<i>President Homer G. Tasker, President S.M.P.E.</i>	
CINEMATOGRAPHER'S BOOK OF TABLES - - - - -	3
<i>By Fred Westerberg</i>	
"THE BIRTH OF A NATION" IN RETROSPECT - - - - -	4
<i>By Seymour Stern</i>	
PERMANIZING MOTION PICTURE FILM - - - - -	6
<i>By Commander W. H. Pashley, U.S.N.</i>	
RECENT PHOTOGRAPHY AND SOUND PATENTS - - - - -	7
<i>By Robert Fulwider</i>	
FLASHES FROM THE COLOR FRONT - - - - -	8
<i>By H. O. Stechan</i>	
MOTION PICTURE SOUND RECORDING - - - - -	11
<i>By Charles Felstead</i>	
THE OLD TIMER - - - - -	12
<i>By Earl Theisen</i>	
MAX FACTOR'S LATEST DISCOVERY - - - - -	13
NOTES ON COLOR PHOTOGRAPHY - - - - -	14
<i>By Karl A. Barleben, Jr., F.R.P.S.</i>	
CINEMACARONI - - - - -	16
<i>By Robert Tobey</i>	
SCRIPT TO SCREEN - - - - -	17
<i>By the Editor</i>	
MINIATURE CAMERA PHOTOGRAPHY - - - - -	18
<i>By Augustus Wolfman</i>	
THE SPEED OF LENSES - - - - -	20
<i>By F. M. Steadman</i>	
MORE ABOUT THE CROSENE COLOR PROCESS - - - - -	22
<i>By Silvio del Sarto</i>	
THE FILM INDUSTRY SOLVES ANOTHER PROBLEM - - - - -	25
<i>By Kay Campbell</i>	
CLASSIFIED ADVERTISING - - - - -	36
THE ONE MAN LABORATORY - - - - -	33
<i>By William Beiri</i>	

Entered as second class matter Sept. 30, 1930, at the Post Office at Los Angeles, California, under the act of March 3, 1879.

Copyright 1934 by Local 659, I. A. T. S. E. and M. P. M. O. of the United States and Canada

Office of publication, 1605 North Cahuenga Avenue, Hollywood, California  
GLadstone 3235

James J. Finn, 1 West 47th St., New York, Eastern Representative  
McGill's, 179 and 218 Elizabeth St., Melbourne, Australian and New Zealand agents.  
Subscription Rates—United States and Canada, \$2 a year. Single copies, 25 cents.

This Magazine represents the entire personnel of photographers now engaged in professional production of motion pictures in the United States and Canada. Thus THE INTERNATIONAL PHOTOGRAPHER becomes the voice of the Entire Craft, covering a field that reaches from coast to coast across North America.

Printed in the U. S. A. at Hollywood, California



## PROSPECTS FOR MAY

Charles P. Boyle, clever creator and editor of that delightful page, "Out of Focus," is expected to return soon.

Lewis W. Physioc, Technical Editor, will tell of the beginnings of cameramen's organizations in America.

Associate Editor Charles Felstead will continue his distinguished articles on Motion Picture Sound Recording.

Earl Theisen, Associate Editor, will get back to first principles and give his readers a real bit of motion picture history.

The Crosene Color Process will continue to elucidate the details of its system from angles of projection technique and the camera.

Augustus Wolfman will address his steadily increasing clientele with another enlightening article on Miniature Camera Photography.

Robert Tobey, inventor of "Cinemacaroni," is making new friends with each installment. Have you read the great Hollywood mystery story yet?

Paul R. Harmer will be back in the fold soon, but not in May, with part one of a series of three stories that will be of great interest to the cameramen who want to know something of under-sea stuff.

Karl A. Barleben, Jr., F.R.P.S., will contribute "The Man Behind the Camera." If the amateur wants to know how to make pictures and not merely to devote his time in technical research this article will be of great help to him.





# CINEMATOPHOTOGRAPHERS BOOK of TABLES

For 35 mm and 16 mm

The practice of cinematography falls naturally into two distinct divisions, one the Art and the other the Science of Cinematography.

As a consequence the cinematographer is constantly playing a dual role. One minute he may be a sensitive artist, his mind receptive to the many impressions that influence his work as an interpreter and creator. At any moment, however, he may have to step out of this part and bear down with lowered brow to the business of being a technician.

Much of this activity along technical lines consists of little more than routine computation which, after all, is sheer waste of time if the answer (which is all that matters) can be obtained at a moment's notice by referring to a table. At the same time information that is ordinarily ignored, simply because it is not available in work-a-day form, may thus be utilized when the occasion arises. . . .

## ILLUMINATION

Types of Incandescent Lamps used in Motion Picture Photography.

Relative Distribution of Radiant Energy emitted by various types of Carbons.

Variation of Light, Life and Wattage of gas filled Mazda Lamps, when operated at voltages above or below their rated voltages.

## ANGLE OF VIEW AND SIZE OF FIELD EMBRACED BY LENSES OF VARIOUS FOCAL LENGTHS

16 mm. Film.

35 mm. Film.

## MAKE-UP

Panchromatic Make-up Numbers.

## FILTER TRANSMISSION GRAPHS

## FILTER FACTORS

Filter Factors for normal daylight exposures on standard brands of Panchromatic Motion Picture Film.

F/Values compensated for various filter factors.

## DYNAMIC SYMMETRY

The Mean and Extreme Ratio applied to motion picture composition.

## APERTURE UNITS

Relative transmission of light through a lens at various F/values, expressed in terms of Aperture Units.

## TIME UNITS

Degrees of shutter opening required to obtain various units of exposure expressed in Time Aperture Units.

## SHUTTER VALUES

F/values required in order to obtain the same exposure at various degrees of shutter opening.

Equivalent F/values obtained when the shutter is closed down instead of the lens diaphragm.

## TIME CONVERTED TO FEET OF FILM

16 mm. Film.

35 mm. Film.

## EQUIVALENT MAGNIFICATION

Distances to objects required for various lens in order to produce images of equal size on the film.

## OVER-ALL MAGNIFICATION

Over-all magnification of the projected image for various combinations of camera and screen magnification.

## DEPTH OF FIELD

20 mm. Lens.

25 mm. Lens.

35 mm. Lens.

40 mm. Lens.

By

FRED

WESTERBERG

50 mm. Lens.

75 mm. Lens.

100 mm. Lens.

## SUPPLEMENTARY LENSES

16 mm. Film.

Data on the use of various supplementary lenses in photographing at close range with camera of the fixed focus type.

## SENSITOMETRY

The characteristic curve.

Converting density readings to Gamma.

Over-all Gamma obtained by various combinations of Negative and Positive Gammas.

Conversion Table. Density to Transmission to Capacity.

Color Sensitivity of the Eye. Color Chart.

## THE COLOR OCTAVE

Wave Length and relation vibration frequency of the various colors that appear in the visible spectrum.

## PROJECTION

Size of picture obtained in projection with different lenses at various distances from the screen. 16 mm. film.

Width of picture obtained in projection with different lenses at various distances from the screen. 35 mm. film.

Width of picture obtained in projection with different lenses at various distances from the screen. Projection background process. 35 mm. film.

Effect of projection angle on screen proportion and on the rectangular shape of the picture.

Effect of various screen magnifications on the brightness of the projected image.

16 mm. Film.

35 mm. Film.

Incandescent lamps for use with 8, 16 and 35 mm. portable projectors.

## 8 mm. FILM DATA

Angle of view and size of field embraced by Camera Lenses.

Size of picture obtained in projection at various distances from the screen.

## MISCELLANEOUS DATA

Running time at various camera speeds for use in checking the speed of camera motors. 35 mm. film.

Fast working fixing bath.

Copper Wire Table.

## CAMERA IDENTIFICATION MARKS. 16 mm. FILM

## FILM AND APERTURE SPECIFICATIONS

16 mm. Film.

35 mm. Film.

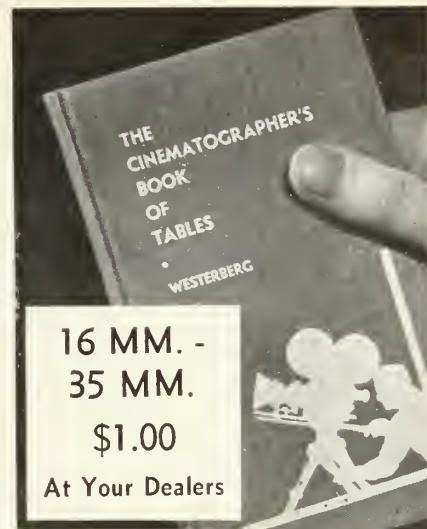
## DEVELOPER FORMULAS

## WEIGHTS AND MEASURES

Conversion Tables. Grams per Liter to Grains per Quart and to Ounces per Quart, etc.

Conversion Tables. mm. to Inches—Inches to mm. Grams to Grains—Grains to Grams. Metric and U. S. Equivalents.

Advertising Section.



# "The Birth of a Nation" In Retrospect

By SEYMOUR STERN

(Written for March, 1935, Issue of the International Photographer)

**T**HIS month (March) the moving picture as a fine art is twenty years old. The picture with which significant cinematic history begins is D. W. Griffith's *The Birth of a Nation*; hence, the twentieth anniversary of this film affords an excellent occasion for a review of some of the qualities which have made it great. Aside from its signal artistic merit, the world-wide waves of purely external commotion which the picture stirred up form a teeming chapter in the annals of the cinema.

It appeared twenty years ago as an unforeseen and unprecedented phenomenon in the old-fashioned movie-world of the day. With it the cinema became at one stroke a self-respecting art, and its first masterpiece was acclaimed by the critics. Simultaneously, the motion picture was once and for all delivered from the gaudy dominion of the vaudeville show, which at that time had a stranglehold upon it—and David Wark Griffith entered into that long and magnificent reign as the king of directors, which is still the envy of his successors.

Since its official world premiere at the Liberty Theater in New York, *The Birth of a Nation* has grossed more than \$18,000,000, permanently breaking all box-office records both of stage and screen. The cost of production having amounted to \$500,000, it is evident how staggering were the net profits. Yet, neither his heroic efforts in the promotion and execution of the film, nor his splendid creative genius, reaped for Griffith more than a negligible share of these returns.

The picture was sweepingly successful with all types of audiences throughout the country. It took city after city by storm, dazing the immense audiences by its gigantic dimensions and its overpowering emotional content. Along with this miraculous popular appeal it provoked, by its treatment of the Negro question, a bitter controversy that was destined to keep it on exhibition for more than a decade to come.

It was first shown on February 8, 1915, at Clune's Auditorium (now the Philharmonic), in Los Angeles; but at this time it was still known by the title of Thomas Dixon's book, from which the story had been taken: *The Clansman*. However, at a special showing at the Rose Gardens, New York, the change of the title came about in a curious fashion. Exhilarated by the avalanche of applause that rocked the auditorium during the climax, Dixon stood up and shouted to Griffith that the picture was too powerful to bear so tame a title. "Let's call it *The Birth of a Nation*," he said, and as this very idea was expressed in one of his own subtitles, Griffith readily agreed. Equipped with this new and imposing title, the picture was shown, several days later, to President Wilson and members of the Senate and the Supreme Court, at a private exhibition in the East Room of the White House.

Distribution proved the great problem of the moment. In order to appreciate the difficulty which Griffith faced in connection with the release of his film, it is neces-

sary to realize that the picture was twelve reels long—three times the length of the longest American films (Griffith himself had made the the first feature-length film, the four-reel *Judith of Bethulia*) and four reels longer than the longest picture made up to that date, the Italian *Cabiria*. It was a cinematic enormity, a behemoth calculated to appall the conservative, commercial-minded stockholders and to frighten away all possible exhibitors. The latter flatly refused to handle the picture—not one could be found with sufficient courage and foresight to experiment with its release even in limited areas; the only step left to Griffith was, therefore, the audacious formation of his own distributing company. This step he took, and not inappropriately christened his venture: The Epoch Film Corporation. Now, seen in the light of historical perspective, it is clear that this was also the logical and only way by which Griffith could have insured the artistic integrity of his film—for to have forced it into the regular channels of commercial distribution, which at this time had already become standardized, would have been fatal to the 12,000 feet of celluloid in which *The Birth of a Nation* unreeled its varied splendors. Hence it was as an out-and-out independent—indeed, almost as an experimental—production that Griffith's film formally opened on March 3, 1915, at 8:05 P. M., in the Liberty Theatre, New York. Here it ran for 45 consecutive weeks at the unheard of admission fee of \$2.00 top (it was the first film for which this price was charged) twice, and sometimes three times, daily (when special morning performances were held); and this while running simultaneously at the same top prices in other theaters throughout New York City and the immediate environs. At the end of the forty-fifth week, in January, 1916, *The Birth of a Nation* had created the historic record of 6,266 performances for this territory alone. Astounding, that the cinema's most multitudinous success should have come so early in its history!

The picture's career throughout the rest of the country was as meteoric as this, though the added feature of recurrent and almost institutionalized revivals which later came to attend it, made it seem more like a brilliant planet than a meteor, permanently coursing through the cinematic skies. The initial record-breaking run at the Liberty Theater has been broken by other films only twice since—by *The Covered Wagon*, which ran 59 weeks at the Criterion Theater, New York, in 1923-24, and by *The Big Parade*, which ran 97 weeks at the Astor Theater in 1925-26-27. Millions of new film fans were attracted by it to the cinema during its phenomenal runs in this country and its equally phenomenal showings after the War in the capitals of all European countries except France, by whose government the picture was officially banned. These European successes have never been even remotely equalled by any other films with the possible exception of Eisenstein's *Potemkin*. In the Southern states of this country, where it aroused tumultuous waves of excitement among the people, it coursed in a fixed





Left—An authentic, un-theatricalized reproduction of Lee's surrender to Grant at Appomattox courthouse. One of the many scenes that make "The Birth of a Nation" significant as an historical document.



Bottom—Henry B. Walthall ("the Little Colonel") and Lillian Gish (Elsie Stoneman) in the scene in the Federal hospital at Washington, after the Civil War.

Right—Griffith combined heroic sweep with documentary realism in the battle scenes of "The Birth of a Nation." This shot is taken from the last Confederate charge at Petersburg, at the close of the Civil War. Note the amazingly natural postures and movements of the soldiers, and, at the same time, the strong, dynamically balanced composition.

orbit throughout the region for fully five years after its initial appearance.

The staggering profits amassed by the picture since it first came out can be understood only in the light of its many and frequent revivals. In 1921, six years after its first release, *The Birth of a Nation* broke all previous weekly box-office records in a two-week revival at the Capitol Theater in New York. Three years later, this extraordinary achievement was repeated when the picture, in a revival at the Auditorium Theater in Chicago, established a new high-watermark by breaking all previous attendance records for that immense house. Half a dozen revivals were held during the following five years in New York, Chicago, Detroit and other large cities, and in 1932 the picture was re-issued with a sound and musical synchronization on a regular nation-wide scale of distribution. It was with justifiable pride that Griffith, after the picture had given every evidence of living indefinitely, proclaimed his masterpiece "An American Institution"!

This rather discursive treatment of fact must not mislead the reader into taking *The Birth of a Nation* for an ordinary popular product. It is a work of art in the most sober and complete sense of the word, and its popularity, aside from the natural tribute which such a fact represents, adds nothing to its esthetic value. It is amazing for its grand perfection of structure, a structure as symmetrical as a Greek temple and as voluminous and intricate as an encyclopedia. Yet the general pattern is decidedly dominated by the demands of the action, and the picture, for all its epic dignity and scope, retains the advantages of good melodrama without incurring its banality.

Formally divided into two parts, *The Birth of a Nation* covers the American Civil War and the Reconstruction Period in the South. The first part is concerned exclusively with a depiction of the establishment

of Negro slavery in America and of the great battles of the War; the second part interprets the struggle between the defeated Southerners and the emancipated Negroes for control of the South. In this latter part the robed and hooded figures of the clansmen form the visual and dynamic dominant of the imagery.

Space does not permit a reminiscent survey of the story of the film; fortunately, many millions of people are familiar with it.

The picture is so remarkable from such a variety of important aspects that it is not easy immediately to select any given one. In virtually each of its twelve densely packed reels, Griffith introduced a multitude of technical innovations that have since become part and parcel of filmmaking. Here for the first time he used night photography, soft-focus photography, moving-camera shots, lap dissolves, the split-screen, and acute camera angles. The low-angle shots of mounted clansmen, looming over frightened Negroes, are unforgettable. His subtle use of the iris in the first half marks the fruition of that device. A celebrated example occurs when he irises-in upon the figure of a woman clutching two children to her sides; as the iris enlarges, it discloses a huddled group of Confederate refugees nearby, crouched on a hillside. Far below, in the semi-distance, Sherman's army cuts its destructive path toward the sea. The effect of this slow revelation of the two contrasting groups—the refugees in the foreground and the army in the distance—is that of a vast vision seen through a peephole. Like the moment when, by the use of the split-reel, Griffith projects the elder Cameron girl's vision of her brother's death, on the upper part of the screen, it is another one of those uncanny creative touches which abound in his work, lending it so much freshness and originality. The piecemeal richness of Griffith's film, as exemplified by these devices, is an endless source of delight to the film-lover.

(Turn to Page 23)



# Permanizing Motion Picture Film

[The author, Commander W. H. Pashley, U. S. Navy, graduated from the U. S. Naval Academy in 1908. He entered the Submarine Service in 1910 and interested himself in the improvement of submarine Diesel engines. In 1914 he took a post-graduate course in Engineering at Columbia University. After the World War he was Superintendent of Submarine Engine construction at the New York Navy Yard and during this period developed centrifugal casting machinery for casting stronger, lighter materials for use in Diesel engine construction. He holds some important centrifugal casting patents which the U. S. Government has been using since that time in various Navy Yard foundries. Commander Pashley served in charge of the Recruiting Publicity Office in New York, from 1930 to 1933, during which time he became acquainted with the motion picture industry in the East. He became interested in the permanizing of film while on this duty and while endeavoring to eliminate the replacement expense of Navy Recruiting Short Subjects which are distributed free in both 35 mm. and 16 mm. films. He is responsible for the development of the process just described.—Editor's Note.]

**A**BOUT two years ago I was shown a piece of processed film which was superior to anything I had ever seen. It was pliable, very strong and the emulsion was practically scratch and moisture proof. Also micrometer measurements showed that the processing of this film had not increased its thickness.

At this time I was in charge of the distribution of Navy Recruiting Short Subjects which were furnished free to exhibitors and which were subjected to terrific wear and tear. The hard usage these films received required frequent renewal and the replacement expense was so great that anything designed to prolong the life of motion picture film received my closest attention. I had at this time used several different processes, but each had very definite limitations though we were glad to pay as much as a dollar a reel to prolong the screening life of our "Shorts." It was at this period of my search for a satisfactory process that I was shown the film mentioned above.

Processing some samples of this super film and comparing it with the ordinary film I found the following results:

1. Four to five times as many bends and reverse bends without cracking or wearing the emulsion which was exceedingly tough.

2. Its tensile strength was greater, probably due to the toughness of the emulsion.

3. It was highly resistant to scratching, requiring a steel instrument to loosen the emulsion.

4. It could be thoroughly immersed in warm water and dried off with a cloth without lifting the emulsion or lessening its resistance to scratching.

5. Rubbing it between thumb and forefinger brought to the surface of the emulsion a small amount of lubricant (sufficient to protect the emulsion and ease the film through a projector).

6. Loop tests showed that, except for wear on the celluloid surface, the film was practically indestructible and made several thousand projector runs in a continuous loop without damage to the emulsion.

7. The screen brilliance of the projected picture appeared greater than normal, probably due to some impregnated oil.

8. A second piece of this film was measured and showed a minimum shrinkage, in fact it was slightly less than normally found in film of the same age.

After completing these tests I had a sample sent to one of the largest film research laboratories who, after exhaustive tests, gave the film a rating of 100 per cent.

Being thoroughly sold on this process, after such tests,

I was ready to close a contract for processing Recruiting Shorts but was unable to do so as this film was hand-treated, and the owners of the process were then endeavoring to develop automatic machinery which they hoped to have perfected in a short time.

Some months later I was called in consultation by the owners of this process because they had been unable to develop automatic processing machinery. The development of this machinery was then turned over to me, and after many months of effort a successful, dependable, fully automatic machine was constructed which required practically no attention other than threading, oiling and renewal of chemicals every eight hours. Furthermore, it processed film at any speed desired for less than two cents per 1,000 feet. Think of receiving automatically motion picture film, positive or negative good in excess of five hundred projections, without scratches or imperfections (assuming a normally adjusted projector) for less than two cents per reel.

The process is chemical and the automatic machine is installed in a very small space between the last wash tank and the dryer and will fit into any laboratory without changing the design or location of any unit. The dimensions of the machine can be carried to suit laboratory requirements, but in its present form is a box five feet high by one foot six inches deep by three feet long. The inside of the box contains rollers and chemical tanks. Wet film from the last wash tank is passed into the machine at any speed, then through an impregnated oil bath, thence over soaking rolls, thence to a fixing bath which fixes the oils in the emulsion, thence to the usual laboratory dryer or dry box from which it is reeled up in the usual way, fully processed and ready to take any kind of punishment within the projection room or theater. Note that this film is no longer "green." It is lubricated, scratch-proof, moisture-proof and tough and it can be shipped to service as fast as it comes out of the dryer and will give faultless projection during its entire life.

Today this film described above not only fulfills these requirements but does much more, adding strength, toughness, flexibility and a high resistance to projector oil and to moisture. This latter quality is highly important as it tends to keep a constant amount of moisture in the film, namely, it retards the drying out of the film. Also in the case of film stored in vaults, should the sprinklers be released for any reason and the vault flooded, every foot of film could be dried off and salvaged. Also, in foreign shipments, the flooding of a ship storeroom containing film would not cause its loss. All of it could be dried off and salvaged. Furthermore, this film is independent of climatic conditions.



Laboratory experts in Hollywood have pronounced this processed film remarkable. One of them even thought the emulsion tougher than the celluloid on examination of a sample strip. All of them agreed that the process had great value for positive but infinitely more value for negatives which are frequently, and in spite of the greatest care, damaged in the printers by scratching, handling and the picking up of celluloid dust from the perforations.

During the testing of film processed by this method one short subject was projected at the Embassy Theater in New York (Newsreel Theater) one hundred and sixty-eight times. It was then examined by a laboratory superintendent who pronounced it perfect but he did not believe it had been projected more than once or twice. This theater was noted for being tough on film on account of the large number of daily shows. After this run at the Embassy, the film was sent to France and run through the French distribution circuit and then to Egypt where it was run through that distribution circuit. The film was undamaged when it had completed the above screenings.

One laboratory superintendent said he thought that the loss from scratched and damaged film which had to be replaced could be conservatively placed at five per cent. If this is a reasonable estimate, a producer putting fifty pictures of seven reels and a 150 print release would have a spoilage of approximately two 625 reels or about 2,300,000 feet of film.

Assuming a print cost of two cents per foot this loss is \$46,000 and only represents the film so badly damaged as to require replacement. The other 95 per cent is also damaged before it is through its distributing circuits but can still "get by" in the nickelodean or neighborhood theaters. This film amounting to 49,875 reels, approximately, is unfit generally for screening in a Class "A" Theater and represents a printing cost of \$875,000 approximately. Surely nearly a million dollars in prints is worth permanizing and there is a possibility that ad-

By COMMANDER

W. H. PASHLEY,

U. S. N.



missions in the neighborhood theater could be raised if the screening quality of the pictures were improved.

The realization of the value of this process to the motion picture industry not only in the interests of better pictures mechanically but also in the interest of eliminating the large monetary losses in film now borne by the producer, caused me to devote all my available time to the perfection of this process which has now been in successful operation in one of the independent laboratories in the East for the past year. The prints from this process have now found their way all over the United States and never once has there been a complaint. The film has stood the test of service which, after all, is the real test.

I want to emphasize that the process above described is in no sense a repair process. It treats chemically new, wet film and permanizes it so that repairs are never needed.

## RECENT PHOTOGRAPH AND SOUND PATENTS

By ROBERT FULWIDER

1,990,529—Method and Apparatus for Color Photography and Projection. Ludwig M. Dieterich, Newark, N. J.

1,990,754—Motion Picture Theater & Apparatus Therefor. Oscar H. Ross, New York, N. Y.

1,991,136—Photographic Emulsion & Method of Making Same. John S. Capstaff, assignor to Eastman Kodak Co.

1,991,178—Sound Recording System. Roy R. Scoville, assignor to Electrical Research Products Corp. of New York.

1,991,249—Process of and Apparatus for Developing Film. Tom Ingman, Frank Garbutt and Leigh Griffith, all of Los Angeles, Cal.

1,991,251—Apparatus for and Process of Developing Film. Tom Ingman of Los Angeles, Cal.

1,991,311—Focus and Exposure Gauging Device for Motion Picture Cameras. David Barbieri, Garwood, N. J.

1,991,472—Method and Apparatus for Producing and Projecting Sound Motion Pictures. Ernest Stern of Astoria, N. Y.

1,991,508—Film Footage Indicator for Amateur Film Magazines. Albert Kindelmann, assignor to International Projector Corp. of New York City.

1,991,530—Dissolve Device for Cameras. Joseph B. Walker, Los Angeles, Cal.

1,991,578—Photographic Camera. Carl J. Rixen, assignor to Hugh Tevis, London, England.

1,991,630—Apparatus for Printing Sound Motion Picture Film. Oscar A. Ross of New York, N. Y.

1,991,670—Apparatus for Projecting Lenticular Film in Natural Colors. Gerd Heymer, assignor to Agfa Anasco Corp., Binghamton, N. Y.

1,991,814—Mat Box Mounting for Motion Picture Cameras. Geo. A. Mitchell, assignor to Mitchell Camera Corp., West Hollywood, Cal.

1,991,870—Film Gate. Walter A. Schulz, assignor to Radio Corp. of America, New York.

1,991,888—Lenticular Full Tone Reproducing Screen. Victor Ernst, assignor to The Full Tone Process Co., Cleveland, Ohio.

1,991,957—Motion Picture Projection Apparatus. Luigi Ranieri, Rome, Italy.

1,992,169—Coloring Photographic Images. Percy D. Brewster, Rumson, N. J.

1,992,201—Apparatus for Reproducing Sound on Film. Lee De Forest, assignor to General Talking Pictures Corp., New York City.

1,992,237—Automatically Rolling and Re-rolling a Film. Barton A. Proctor, assignor to Kinatome Patents Corp., New York.

1,992,279—Apparatus for Goffering Lenticulated Film. Hans Arni, assignor to Siemens & Halske, Berlin, Germany.

1,992,706—Cinematographic Mechanism. Pedro Lira of Iquique, Chile.

# Flashes From the Color-Front

By WILLIAM LANGTON PRAGER

(As Told to H. O. STECHAN)



**N**EVER have the hills of Hollywood been more colorful to the eye than this Spring. In fact, they seem to reflect the general color consciousness of Hollywood itself, which is here to stay for many months, if I am not mistaken; for, of a certainty, Hollywood film production has become color-conscious in a "big way," all of a sudden, one might say.

At this writing, every major studio is waiting breathlessly to see what is going to happen to the efforts of one pioneering color organization, in bringing a color-feature of rational magnitude to the screen, within a fortnight. It is really a pregnant moment in the history of this great industry, so fraught with surprises.

As I view it, the future of color depends largely upon the public's reception of this color-opus. If and when Mr. and Mrs. John W. Public acclaim the forthcoming picture a masterpiece and the press sings its praises, then watch the fun.

Every major producing unit is almost certain to announce immediately an all-color feature program, in an effort to out-rival its competitors and the color-cycle will be on in full swing. Then, as was asked in a precious discussion entitled, "Color Cinematography," appearing in *THE INTERNATIONAL PHOTOGRAPHER* for February, 1935: just how will the demand for color production be met?

Well, nobody knows for sure. But there is no harm in attempting to predict a thing or two, based on a possible or reasonable "out." Right here, I want to say that I still stand by my "color-cannon," that additive color (black and white images projected through filters) is not in such practical shape at present as to be applied successfully to this end, for reasons previously proved.

Regarding the demand for color camera equipment and the color negative stock for the same, it may interest those who are not yet informed, that a bi-pack stock of very flexible texture—1/3000 of an inch thickness—which has been sealed together on the sprocket-edges, previous to perforation, and of a super-color sensitivity is about to break on the market. It is the product of a local concern and can be used in any camera whatsoever, without the need of a special registration-pin or pressure-plate insulation. This negative stock seems destined to be used extensively in time; but I anticipate its adoption by color newsreel, travelogue and commercial film producers in the beginning.

Then, there is another bi-pack negative, for which patents have been granted recently, where the filter-element is carried on the face of the panchromatic stock, giving added latitude to the registration of color values.

All in all, it promises to be a colorful Spring; for California never had more to entice color production. The great and beautiful outdoors will come into its own once more, as the primary cause for the motion picture industry's very existence within California's borders—at any rate, the atmosphere is tax-exempt.

Therefore, I honestly believe that, if producers will give less thought to state politics and focus their attention on solving actual film-producing problems, we will again see a lot more of the beauty of California on the screen in the coming season and hear much less about the op-

pressions facing the industry. Color is going to do that very thing.

It is as natural for the screen to go in for color, as it was for it to become articulate. We do not live in a silent world, or one of duo-tone images. Everything in it is dominated by the colors of the rainbow. To reproduce that world, its colors must be reproduced. Effective as black-and-white photography has been, it lacks much of the beauty of our environment.

Having mastered most of the other technical aspects of cinematography, it is time now to conquer the color-problem. None will deny that the talkies enlarged the screen's appeal immeasurably over the silents; and there is no good reason to question that color-movies will not exert much the same influence—once they are perfected practically—as compared with black-and-white photography. Color is logically the next step forward for the motion picture industry, with the stereoscopic screen stepping right on its heels.

Producers across the Atlantic are taking up the matter of color seriously. The *Kinematograph Weekly* (London) gave considerable space recently to a subtractive process called Gasparcolor. It is claimed for this system that the film can be processed by practical, normal methods.

"The stock is coated with three layers of colored emulsion," according to the publication. "On one side is blue-green, on the other side pink on the top and yellow beneath it. The blue-green layer is sensitized to blue light only and the pink layer to blue light also; the underlying layer of yellow is sensitized to red light.

"By printing successively, or in some conditions simultaneously, with the appropriate printing lights, namely, blue and red, one can print these three layers independently of each other. Owing to the fact that that part of the emulsion exposed to light, namely, the area in which we shall get developed silver, is that part where the dye is going to be de-colored in subsequent processes, there is a reversal of the image, so it becomes necessary to print Gasparcolor from a positive transparency, not from a negative. This presents obvious advantages in three-color printing. Balancing, for instance, can be done before printing."

The chemistry of the process is not revealed. Concerning the sound-track, this is printed with white light in an ordinary sound-printer, on the pink side of the film. For shooting Gasparcolor, a special camera has been built. It is equipped with registering pins. The consecutive frames of a single film are exposed through a disk filter. Thus far its use has been limited to advertising films and cartoons. No feature production has yet been made with it.

Coming back to the matter of color on the screen, as with everything: The proof of the pudding is in the eating. No one knows how many different color systems have been devised; but it may be said that there are literally hundreds of them—and more yet to come. In

(Turn to Page 27)



# EASTMAN

## *Super X*

### Panchromatic Negative Film

#### ANNOUNCED RECENTLY

---

---

- and given instantaneous response by  
DIRECTORS of PHOTOGRAPHY  
PHOTOGRAPHIC TECHNICIANS  
PRODUCTION EXECUTIVES
  - and rigidly tested in practically all major  
studios for projected transparency back-  
grounds, special effects photography and  
straight production work has unanimously  
disclosed such startling results that immediate  
demands have completely exhausted the  
available supply—
  - Regular floor-stocks of this splendid new  
negative film will be available for uninterrupted  
delivery to the trade in Hollywood on or before  
APRIL 10.
- 
- 

J. E. BRULATOUR, INC.

# Motion Picture Sound Recording

## Chapter XVII

**T**HE preceding chapter served to introduce this discussion of the arrangement and manner of connection employed between the pieces of equipment in the standard sound recording installation of the Western Electric system. The mounting of the equipment on metal panels supported by "relay racks," which are grouped in recording units known as "channels," as well as the methods of circuit connection and fusing were described in that introductory chapter. We now conclude with this chapter that discussion of the physical construction and arrangement of the amplifying equipment used by most sound receiving studios.

### Grounding Arrangement

A solid copper grounding bar running the whole length of the channels is fastened along the bottom of the bays (a bay is the unit of a single relay rack and its mounted panels) in permanent installations; and all of the ground wires from the pieces of equipment in the bays are soldered to it. A number of thick copper wires connect this ground bar to copper plates buried in the earth. Portable sound recording installations are usually grounded solidly to the metal frame of the truck on which they are mounted.

In every amplifier in the permanent recording equipment, each grounding point is connected individually to the copper bus bar by a separate wire, the purpose of this seemingly unnecessary labor being the elimination of "ground loops." This grounding scheme is illustrated at A in Figure 1.

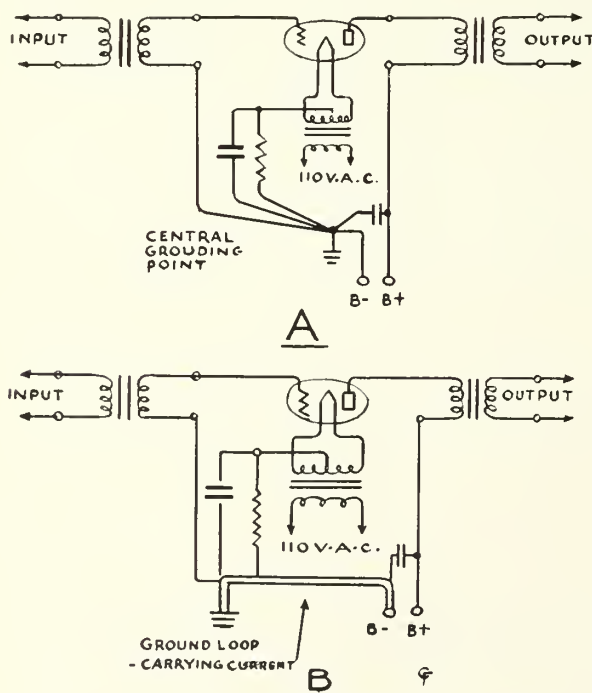


FIG. 1. Correct and Incorrect Methods of Grounding Amplifiers.

A ground loop in an amplifier, it must be explained, is a portion of a ground circuit that carries current. An example of the ground loops that would occur if only a single ground wire were used on the amplifier shown at A is depicted at B in Figure 1. This is an important point that must be watched carefully in the design of amplifiers, whether they are for sound recording, public address systems, radio transmission or reception, or other purpose.

### Connection Between Amplifiers

Another important factor to be considered in the design of the most efficient type of sound recording system is the type of wire employed for carrying speech current between the amplifiers and associated equipment, and from the connection blocks on the channels to the M.D.F. This is a most important matter, particularly in elaborate recording installations. Even the placing of each wire with relation to other wires and equipment is a vital matter where highest quality is desired.

The wire most commonly employed is No. 18 gauge; the wires are rubber covered for insulation and placed in pairs, each pair of wires being enclosed in a lead sheath. With the older type of wire, the two conductors were laid parallel; but in the wire that is now employed, the conductors are twisted together within their lead covering. This twisting causes the electromagnetic fields (magnetic fields produced about the wires by the current flowing through them) of the two conductors to cancel out each other, with the result that there remains practically no external electromagnetic field about the pair of wires to couple with adjacent wiring.

The lead covering is grounded to the heavy grounding bar and serves as an electrostatic shield for the conductors. This tends to reduce the possibility of outside electrical disturbances, such as induction hums from A.C. wiring, being picked up by the wires and fed to the amplifiers. The twisting of the wires and the grounded lead shielding, together with careful division of the wires into "high-level" and "low-level" groups and judicious distribution of them in the racks and gutters, helps to eliminate all sources of undesirable coupling between portions of the recording system. Among the troublesome forms of coupling are cross-talk (the transference of speech energy from one circuit to an adjacent circuit by induction) and the feed-back of energy from the output of an amplifier to its input (the presence of which causes audio-frequency oscillation, or "howling" in the amplifier).

Since the impedance of the transmission lines connecting amplifiers is low, being usually 50, 200, or 500 ohms, and the voltage handled by them is also low, the small amount of electrical capacity that exists between the two conductors forming each line is not harmful.

### The Jack Circuits

The jacks employed in the standard motion picture sound recording installation are of the two-hole type and require a special double plug. The jacks are mounted



in a row in a one-inch wide bakelite strip 19 inches long, the bakelite strip holding 12 of the jacks. A small strip of paper slipped into a holder fastened over each jack gives the designation and circuit position of that jack. Several of these jack strips are installed in each bay; and the input and output circuits of all amplifiers and other apparatus in that bay are connected to them. The jacks are "normalled" in such a manner that the equipment is connected together in the regular manner when there are no plugs in the jacks.

An elaborate layout of jack strips is mounted in the central patch bay of large recording installations. This bay carries nothing but jack strips; sometimes there are as many as twenty rows of them. These jacks are connected to the main input and output circuits of each channel; and they are provided for the purpose of "patching over" entire channels. Patching within the individual channels is done by means of the jacks mounted in the bays of those channels.

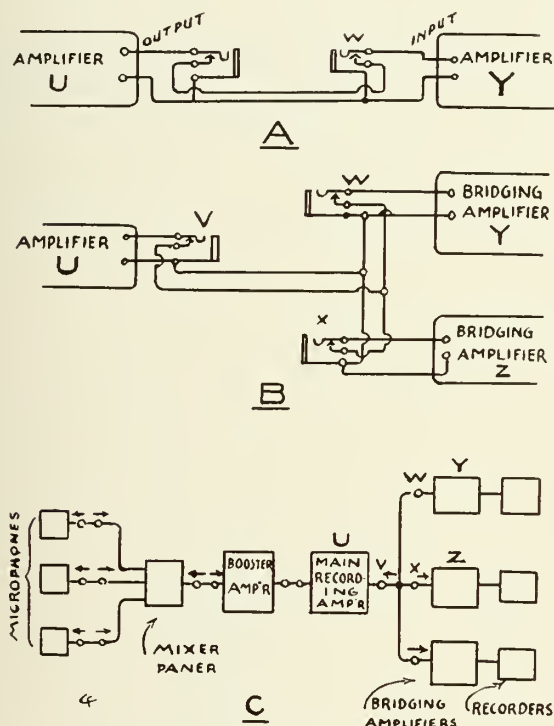


FIG. 2. How Jacks are Employed in the Connection of Amplifiers.

The special two-hole jacks can be represented by regular radio jacks as shown at *A* in Figure 2. It will be evident from an examination of this diagram that the output of amplifier *U* is normally connected to the input of amplifier *Y* (*U* is "normalled" to *Y*), but that if a plug is inserted in either jack, the circuit between the amplifiers will be broken. When the plug is in jack *V*, it picks up the output of amplifier *U*; when it is in jack *W*, it picks up the input of amplifier *Y*. How the output of amplifier *U* would be connected to two bridging amplifiers, *Y* and *Z*, through this arrangement of jacks is shown at *B* in Figure 2. Any of the three amplifier circuits may be picked up by inserting a plug in the corresponding jack.

In block schematic diagrams, such as that of *C* in Figure 2, this arrangement of jacks is usually represented in the manner shown. Here the jacks are indicated by small circles, and the pairs of wires that connect amplifiers are represented by straight lines between the rectangles that symbolize the amplifiers. The arrows above the circles indicate the directions the jacks "face." Three of the amplifiers and three of the jacks are marked with

By CHARLES

FELSTEAD,

Associate Editor



letters to correspond with those in *B* of Figure 2. Either of the two microphones, any one of the loud speakers, and the input or output circuit of any of the amplifiers or the mixer may be "picked up" and connected to another circuit by means of a plug and cord.

This arrangement of jacks permits circuits to be changed with ease and surety; and in a case where severe trouble occurs in an amplifier and there is not time to disconnect it at the connection blocks, another amplifier from some other channel may be substituted for the defective one by means of the patch cords and jacks. Repairs to the amplifier that is not functioning properly can then be effected at leisure.

#### Patch Cords

For patching in other amplifiers in place of those normally in circuit, a special type of connector known as a "patch cord" is used. This is an 18-inch length of flexible two-wire conductor terminated on both ends by plugs that fit the jacks in the bays. In the absence of regular patch cords, two plugs of the proper type connected by a length of two-conductor No. 18 Tires cord serves very well as a substitute, since the patch cords are so short it is not vitally necessary that they be shielded.

Patch cords are usually made in two lengths, so that by selection of the cord of proper length for each connection unsightly lengths of cord will not be draped loosely about the equipment. A couple of patch cords of more than normal length are often found useful for elaborate patch-overs between portions of channels that are widely separated. A pair of high-resistance headphones equipped with a regular two-pole plug is necessary for plugging into the output-circuit jacks of amplifiers to check on the operation of the individual amplifiers.

#### Special Purpose Jacks

Besides serving in the input and output circuits of equipment in the bays, jacks are also provided in the channels for special purposes, such as to introduce into the circuit apparatus not normally there, and to facilitate connection between patch cords.

A 500-ohm resistance shunted across a jack in the manner shown at *A* in Figure 3 furnishes a resistance termination that may be picked up by a patch cord and connected to any circuit that may need such a load. Another jack is connected to the ground bus, as at *B*, to provide a convenient ground connection in the jack bay. Other jacks—usually four or five of them—wired in multiple in the manner shown at *C* serve as "strap" jacks. By means of this handy arrangement, the outputs or inputs of several different pieces of equipment may be patched together (that is, in multiple).

#### The Multiple Jacks

In elaborate installations where there are a number of channels, a row or two of "multiple" jacks in the center (Turn to Page 26)



*Associate  
Editor*

# The Old Timer

By EARL THEISEN



HE sun of a Hollywood day has faded. It is the night of a premiere at Grauman's Chinese on the Boulevard. Shining out of the forecourt of the theater is the glaring, blinding brilliance of many klieglights. In this circle of magic is acclaim and fame, top hats and tiaras.

To the star of the picture, tonight is the culmination of a breathless dream. To be the high priestess of the premiere ritual at the Chinese Theater, to be recognized and worshiped with the whole world at her feet has long been in her heart. She has won; she reigns. In her heart is a song.

Outside the magic circle in the half-light of the shadows is a packed throng of worshippers who are pushing, perspiring, and grumbling at each other trying to get a glimpse of the Hollywood elect. Staring out of the darker shadows are the stars of a day gone by. Their bodies clothed in shabby cloaks and frayed gowns, they look on wistfully. Once, in a day gone by, they were the center of the cinematic world; they were the stars of a premiere of yesteryear. Now they are forgotten and part of the shadows of the outer circle. They stare hauntingly—and remember.

Gone is the public demand for their pictures and gone is their peace, for those who knew stardom and the heights in Hollywood can never know peace. Now Hollywood doesn't seem to want them. They are labeled with a stigma of "old-timer."

They have left only courage, and their art. For, do not forget, the old-timers have courage and are, one and all, grand troupers.

In their day, these troupers got there because they were willing to carry furniture, to paint scenery, and then to act—anything to make pictures. The old-timers rose through sheer ability and fell through a change in fickle public taste which was of course beyond their power to control.

The public took them to the heights, and then callously shoved them off. They are human beings, they have hearts and souls and they have bodies that must be fed and clothed, and loved ones to care for.

Go down any side street in Hollywood and there will be found persons whose names were on every tongue. Now they are hardly more than an echo in the twilight of the public memory, and that of the motion picture producer. On the Hollywood side streets these old-timers will be seen like gaunt shadows flitting along. They walk with lowered heads, not that they are shamed, but because they have been made to feel lost and unappreciated and unwanted.

Often they have talked to me, just to talk, with tears in their eyes. One old-timer, a strong and not too old a man, came to me. Yesteryear his name had blazed on every screen. He wanted just to talk. He had tried everywhere to get work. First the casting direc-

tors had turned him down, even for extra parts, then the boss laborer told him he had nothing. Work of no kind could be found, and he had a wife and two children that needed clothing and food. More than that, his furniture had a promissory note against it which was coming due. He had taken the loan against the furniture not for himself but for a friend, also an old-timer, who needed money for medical attention. When I tried to loan him money he looked at me and said: "No, all I want is the chance to work."

Another old-timer, a former prop man, was talking to me. He had just tried to get a job at a studio. "I walked five miles to the studio," he told me, "and when I got there I waited three hours before the personnel man would see me. I didn't mind, because I suppose he was busy. When finally I was ushered into the personnel office, the personnel man, who was rather young, looked at me like I was an old-timer. It just took the heart out of me—and I did not get the job. I could not give him a good talk."

The stigma of old-timer is like a burning iron brand. It doesn't mean age because many, many of those branded old-timers are no more than forty or forty-five years of age, neither does it mean incapability. The old-timer is anything but incapable, for you see, he grew up in the motion picture industry and he knows nothing else. He started when very young. I admit both the mechanics and art of the motion picture have made great strides, perhaps too great a stride for the old-timer. The strides of the motion picture, in fact, have been that of a Gulliver while that of any particular individual has been like the steps of the dwarf Lilliputian chief secretary, Reldresal. There was a time, however, not so long ago when the old-timer was in step and helped set the present stride of the motion picture Gulliver. The old-timer was in step when he was a leader in the motion picture; he is no longer a leader and he knows that, but he still must eat. He gets mighty hungry.

Even though the old-timer is no longer at the top of the motion picture pile, there is still needed a lot of persons to keep the pile together, and the old-timer would be satisfied and happy too, with a small part in the pile. He would be satisfied with an extra part, or a furniture mover job. He was both in the old days.

The old-timer would be satisfied with anything just to be able to be around the motion picture. It's in his blood.

It is not enough to point to the charities. The old-timer wants to work. A few of the big shots know that, among them Cecil B. De Mille and Jesse Lasky, and they are thanked and praised for their understanding of the man of yesteryear; their pictures do not suffer because they hire an old-timer who in many instances has nothing more than a hit part or atmosphere in a mob scene. The old-timer is satisfied with the part, too; I know, because I have talked to him.

Time after time, my attention was called to incidents wherein a friend of a producer, one unexperienced before the camera, was hired for a bit part and after the loss of much valuable time and amazing sums of money an old-timer was called on to do the part. And

(Turn to Page 27)



# The One Man Laboratory

By WILLIAM BERRI

**MOBILITY**—That in itself expresses the importance to the motion picture industry of the compact, portable, one-man laboratory developed by Hugh H. Gwynne.

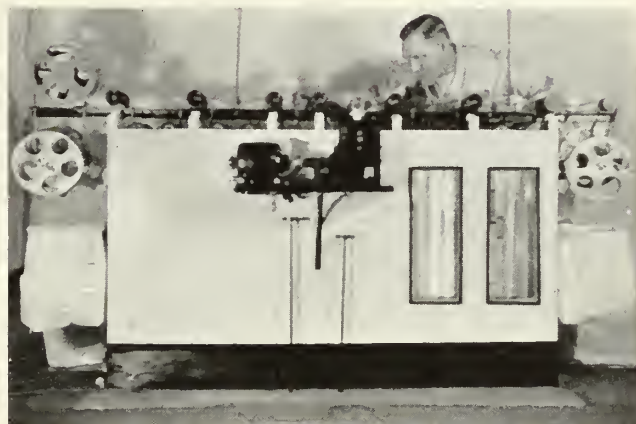
Through many trying experiences in foreign countries handling laboratory work on make-shift equipment, he has evolved this transportable developing machine.

Further contemplation brings forth possibilities of economy, efficiency and of individual processing for distinctly individual results.

First of all let us consider that the developer solution circulating through the automatic temperature controlled system amounts to twenty gallons. With an exposed area of less than one square foot, the oxidation of the developer is reduced to a minimum. Breakage is a factor actually eliminated and thirty feet of leader stock is used to clear the track for adjustment of speed. Self-contained (overall dimensions 8 feet length; 5 feet 10 inches height; 3 feet width) this machine occupies very small floor space, which enhances its utility in many places or locations, making it possible for machine development which has heretofore been impossible.

Weight approximately 450 pounds, this machine has a capacity of 5,000 feet positive and sound track per eight hours; 2,500 feet panchromatic negative per eight hours; making it ideal and of sufficient capacity to take care of one producing unit. If larger capacity is required "The One Man Laboratory" can be arranged in batteries of two or more to meet the required production demands. A positive drive sprocket supplemented by six additional "booster" spools moves the film in a straight line from feed end to take-up spindles, with a half twist between each roller, resulting in the greatest compensation for stretch and shrinkage.

The developing process follows accepted practice.



First: Developing Tank.

Second: Hypo Tank.

Third: Water Tanks.

Fourth: Drying Compartments.

All of which are self-contained.

The machine has been designed to accommodate standard 35 mm., 16 mm. or Leica film without any mechanical changes or adjustments.

Many cameramen feel that the present method of standardization of machine development places them at a disadvantage in trying for certain effects that can only be obtained by experimentation in processing. A small machine of this type placed at their disposal would make experiment economically practical and result in further artistic attainments by cinematographers.

These units can be knocked down and made ready for shipment (by water or rail) in three hours, and can be re-assembled, checked and tested for production in the same time.

## NEW!

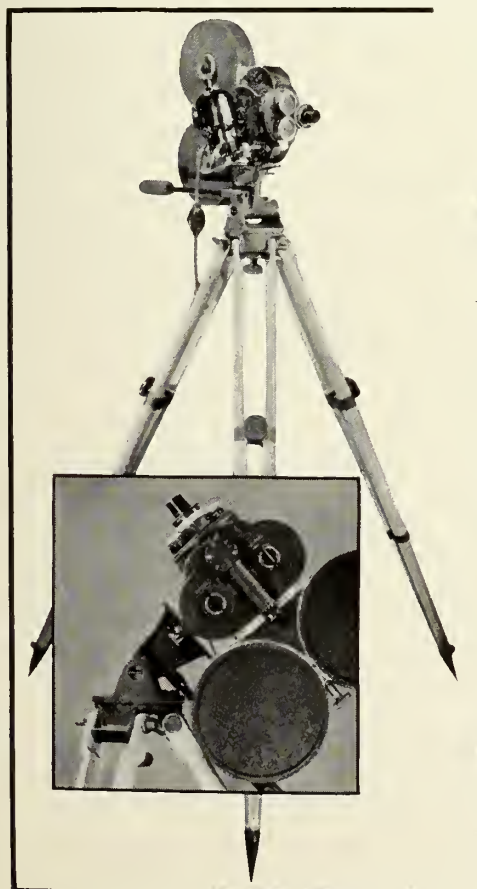
### Special Eyemo Tripod

**Extra Rigid — Light Weight**

This new tripod was designed especially for use with the motor- and magazine-equipped B & H Eyemo Camera, for news, scientific, and exploration work. Smooth working pan and tilt mechanism. Up tilt 45° with 400-foot magazine, 60° without magazine. Tilts straight down. No weaving in a strong wind or when hand cranking. Legs have single-gear, quick-action clamp and steel spurs. They are 36 inches closed, 72 inches extended. Write for complete specifications and literature.

**BELL & HOWELL COMPANY**

1319 Larchmont Ave., Chicago; 11 West 42nd St., New York; 716 North LaBrea Ave., Hollywood; 320 Regent St., London (B & H Co., Ltd.) Established 1907.



Please mention The International Photographer when corresponding with advertisers.



# Notes On Color Photography

By KARL A. BARLEBEN, JR., F.R.P.S.

(Written for the International Photographer and held over from our Issue of March, 1935.)

## DuFayColor Is Here and With a Bang!



**COLOR** photography has for years captured the imagination of all kinds of photographers. Fortunes have been invested and lost in the perfection of various processes. It is safe to say that while all of the many processes, which have been successful in at least appearing on the market if even for only a short time, none has actually proved completely satisfactory from every angle.

Either it was too expensive, required special apparatus, limited photographic activities with respect to exposures, or the colors could not be faithfully reproduced as the eye sees them. These and many other difficulties have consistently hounded investors and promoters. In short, then, natural color photography has not been a particularly successful venture, technically or financially. Even today, in spite of tremendous progress having been made in the field, there still exist a few kinks to be ironed out before we can definitely say "here is THE color process."

But progress we do. Almost yearly some new process appears on the market to receive the "applause" or "hisses" as the case may be, of the public. At the present time, there exists a most practical and worthy natural color process—The DuFayColor process. It is today at its height and, from all appearances, it seems destined to hold its enviable position indefinitely. It is applicable to both standard 35 mm. and 16 mm. motion picture film. It eliminates, for the most part, the usual objectionable features of other processes. It has speed galore, requires no special adjustments or accessories, and reproduces color in a manner which is nothing short of amazing, considering that it is a one-film process.

DuFayColor is here, and with a bang! If you haven't familiarized yourself with it as yet, a few words of description will not be amiss. It is similar to existing mosaic screen processes, that is to say, the color is inherent in the film itself. In this case, the color is produced by a screen of infinitely fine lines of color, or rather, the color itself is contained within the tiny areas created by the lines. The dots of color are so tiny that a microscope is required to see them. This means that when projected at even fairly large proportions on a screen the dots are visible, considering a normal viewing distance between spectator and screen, of course.

The lines and color are printed onto the celluloid base of the film by means of exceedingly cleverly designed machines; hence, the emulsion is of the usual panchromatic type. The film in the camera is inserted with the emulsion surface facing the rear, and the celluloid surface facing the lens. An interesting fact in connection with the color rendering is that by altering the lines, the film can be made to respond to various colors with greater or lesser strength. This of course, is done in printing, and is entirely outside the boundaries of the user.

The DuFayColor film is used in much the same way

as black and white film, that is to say, there are no special requirements to be considered, excepting of course, to load the film in the camera in the reverse manner, as mentioned previously. In bright sunlight, no filter of any kind is needed, the film having been adjusted to compensate fully for the various color intensities under such conditions. When photographing indoor subjects illuminated by tungsten light, however, a filter is required to balance the color sensitiveness of the film. Special filters are likewise indicated for various daylight conditions, but by far the greatest number of daylight pictures can be made without the use of a filter. This one fact alone is a boon which will at once be appreciated by all experienced photographers.

Another vital factor is the speed. DuFayColor film is rated at a speed of between 17 to 19 degrees Scheiner—as fast as an ordinary black and white film. This initial speed, plus the absence of a filter, makes it possible to produce color pictures with even a slow lens at snapshot shutter speeds. Then, too, speeding objects are easy game for the cameraman shooting this new color film. No longer is it necessary to confine color photography to still-life and inanimate objects because of the necessity for prolonged exposures.

In view of the fact that DuFayColor film is of the reversal process type (that is, the film in the camera is not developed into a negative in the usual manner; instead, it is reversed into a positive, hence the same film that was exposed in the camera is the one that is finally used as a positive) exposures must be as nearly accurate as possible. A reliable exposure meter should always be consulted when making natural color photographs, and this holds true with DuFayColor as well as with other processes. All too many amateurs overlook this most important point with the result that their pictures are inferior and they claim the process is of no value. Play safe and produce perfect color pictures! Use a good meter for each exposure!

At this writing DuFayColor film has been made available for miniature cameras using standard 35 mm. motion picture film by E. Leitz, Inc. The film is sold only in daylight loading and unloading spools of thirty exposures each. It is not available in bulk (viz., 25, 50, 100, etc., ft. lengths). The possibilities for the miniature camera are unlimited—imagine producing perfect natural color pictures and projecting them upon a screen with the utmost faithfulness and ease. The Leitz Umino

Phone GLadstone 4151

### HOLLYWOOD STATE BANK

The only Bank in the Industrial District of Hollywood  
under State Supervision

Santa Monica Boulevard at Highland Avenue



projector, the miniature outfit which has become so popular since its introduction only about a half year ago, is ideal for the purpose because of its compactness, economy, and practical applications.

And now a few words of caution with regard to photographing color. In general, all black and white photography rules should for the moment be forgotten. Take for example, the problems of lighting arrangements. In black and white work, contrast is secured by having the light come from the side, or even well towards the rear, of the object being photographed. When using natural color film, the lighting must be flat. No trick-lightings will be half as satisfactory, for in color photography the color provides the contrast. This is the first rule to observe. Re-learn the old rule that is taught to all beginners in photography who for the first time in their lives take a box Brownie in their hands—have the light come from the rear of the photographer. In other words, the light should be full upon the object or scene being photographed. Seems all wrong to those of us who through the years have made our pictures with fancy lightings. However, a few test shots will soon point out the right way.

The average black and white photographer is "color-blind," so to speak. That is to say, he is not impressed by color when making pictures because his mind has been trained to see objects in black and white, as they will appear in the finished photograph. With color film in the camera, however, great care must be exercised in the selection of subject material, for now the important thing is the color. There certainly is no use in photographing drab, somber, colorless subjects, even though they would make excellent material for the ordinary black and white picture. Seek color. Be sure there is plenty of it in the scene before making the exposure. If color is absent, the color film is wasted. The results are disappointing. Just as well use a black and white film and let it go at that. For this reason, the resorts and beaches are the favorite hunting grounds of color photographers, for their riot of color—multi-colored bathing suits, yellow sand, green water, blue sky—are real "meat" for the color film. So be sure the scene has good color in it before exposing a color film on it.

Another most important point to keep in mind when photographing with color film is to try to confine the majority of scenes to relatively near objects. In other words, the most successful color photographs are those depicting objects which are not too distant from the camera. The reason for this will at once be apparent when we consider that the color in many processes is created by infinitely small dots of color. When a distant scene, such as a landscape in which there is little or no foreground, is photographed, the objects become so small on the film that details become mixed with the color dots and compete in tininess with them. Result: Mushy and oft-times mixed or wrong color selection. The beginner may wonder what is wrong with his picture. There will not be anything definite he can account for in this result, but he will recognize that there is something wrong and displeasing in it. Where close

objects are photographed, details can easily be picked up and carefully colored by the tiny color dots, hence, we get what is considered a satisfactory color photograph. If this is doubted, make the experiment sometime. Shoot a landscape, or better still, a distant object, such as a house, which is hardly recognizable in the view finder. Then get a pretty girl to pose for a close-up. If possible, get her to wear bright colors. On processing the two exposures, it will be noticed that the close-up produces by far the better color effect of the two exposures—and not only because the girl is pretty. The colors will be rich and definite, whereas in the distant shot, things will be a little vague and indistinct, especially with regard to color.

There is yet another factor to be considered when photographing distant objects. The atmosphere carries with it, as everyone knows, a certain amount of moisture, commonly termed "haze" in photography. As the distance increases the camera and the object, more haze is introduced. It is natural, then, that this haze will appreciably dim the colors of the object. This is not to be considered a fault of the color process, for we recognize the same thing when we look at a distant object. Such objects appear "hazy" as we say, and the colors are weak and faded in appearance. What our eyes perceive, we certainly cannot expect a color film to alter or improve upon. So if some of your distant shots look fuzzy, just consider the natural conditions before condemning the film.

With these few preliminary remarks about the exposure of color film, we next turn our attention to the processing of it. As has previously been mentioned, the DuFayColor process is of the reversal type, and hence the film requires a different developing routine from black and white film. The proper equipment must of necessity be used. Considering the advantage of being able to watch the image as it develops up, some means other than the usual tank method is indicated. For this reason, the Leitz developing drum outfit is highly recommended. This apparatus consists of a glass drum around which the film is wound. The drum is supported by means of a metal cradle or support in such a manner that only the lower section lies in the developing solution in the tray. A crank is attached to the shaft of the drum by means of which the latter is revolved, carrying the windings of film uniformly through the solution in the tray.

Developing tanks such as the Correx and Reelo are not especially useful for processing color film as they do not permit visual inspection. On the other hand, the glass drum arrangement requires a darkroom in which to work. However, as every serious color worker is equipped with a darkroom, this is no serious disadvantage. For those who are unable or disinclined to process their color film, there exists a chain of laboratories which specializes in such work at a nominal charge. These will be found in all large cities on inquiry.

Cleanliness is of paramount importance in color photography. The processing of the film requires care, for scratches, chips, and markings on the delicate emulsion are sure to result in bad scars on the emulsion, revealing the structure of the color mosaic underneath in brilliant hues, thus marring the picture. This imposes no hardship upon the worker, however, for there is no excuse these days for "sloppy" darkroom work. Success will reward the careful worker every time, whether he uses ordinary black and white or color film.

For the benefit of those who are interested in doing their own processing, these tested formulae are published.

(Turn to Page 28)

## 35mm. Eastman or Dupont

Fresh Gray Backed Negative

Price 2½¢ per Foot

for

AMATEURS or PROFESSIONALS

KINEMA KRAFTS COMPANY

6510 Selma Ave. Hollywood, Calif. GLadstone 0276

# A Novel Novel of a Thousand and One Nights in a Daze

The characters: Mostly people.

**Synopsis of preceding chapters:** Lili Liverblossom, famous screen star, is frantically trying to find a way to rescue her press-agent, Perri-wether Murgle, who has been carried by a large Bald Eagle known as Willy Nilly, to his lair. By a chain of reasoning peculiar to her kind, Lili figures out that a ghost will know the way to the eagle's eyrie. While racking her brain to think of a way to lay hold of a ghost, Lili is called to the phone. As luck would have it (wouldn't it, though!) the man phoning her, an old friend of hers, is a ghost writer. As Lili is asking him to write her up a ghost, she hears what sounds like a dull thud at the other end of the wire.

## CHAPTER VI.

### Little Man, No Chow

"Bill!" shrieked Lili, "what was that noise? What was it, Bill . . ."

Lili had heard a dull thud, all right. It was Bill's cousin Gilbert who had just crawled in through a small hole in the floor. Gilbert had been a dull thud ever since the time in his early boyhood when he spent all afternoon trying to squeeze himself into the oven with the roast beef because his father had told him he was half baked.

"Hello, Gilbert," said Bill.

"Can't you ever think up a new greeting," said Gilbert nastily. "That's exactly what you said last time I came here."

"That's exactly what you said, too," answered Bill, kicking him in the stomach.

"That's more like it," said Gilbert, as he pulled a small hammer out of his pocket and smashed an electric clock, a statue of the Three Graces, a porcelain copy of the Sermon on the Mount, and three large bars of peanut brittle in rapid succession. "Hang up that phone, won't you? You've been on it ever since I came in."

Bill turned and put the receiver to his ear. Lili had begun reciting the Gettysburg Address while she waited, and was about two-thirds of the way through it by now. Bill politely waited for her to finish—which took a little longer than you would figure, as Lili became somewhat confused over who was dedicated to which, and had to repeat portions two or three times to refresh her memory. Bill didn't know the speech himself and only knew she had finished by her sigh of relief.

"Now what about this ghost you want, Lili," said Bill when all was quiet once more. "Do you want one that does what you tell him, or one with ideas of its own?"

"A ghost with ideas," said Lili, "would be about the last straw. I'll just take a nice quiet ghost, if you please, but one that knows the ropes."

"As you wish, fair lady," said Bill, and ran up the Stars and Stripes with one hand and hung up the receiver with the other.

"Gil," he called out to the Dull Thud, "go down to my yacht and get me a lot of rope you'll find there. I'm going to write up a ghost for Lili Liverblossom, and she wants one that knows the ropes."

"Whatever the sense is," howled Gilbert, as he slammed the door, "of a sea-going ghost, I certainly don't see."

"Then put on your glasses," snapped Bill. "Besides, you ought to know enough to go outside before you slam a door! What's the use of slamming it when you're still inside?"

"I'm not. I'm back already," grinned Gilbert triumphantly. "My pockets are full of rope. My soul is full of hope. My trunk is full of soap." And laughing merrily, he scattered flowers all over the room and went into an off-to-Buffalo.

"Send me a picture postcard of Niagara Falls," called out Bill, as Gil went down the long staircase; and with that he picked up his fountain pen, filled it with ectoplasm, and went to work.

(At last it looks as if Lili is to get her ghost. Will she be in time? And what will she be in time for? Cross your fingers and hold your breath, and with a nasty laugh we'll leave you until next month.)

Oliver Cross, the highest paid extra of all those who worked last year, earned \$2846 playing "atmosphere" roles. This was earned as a "Class A dress extra," so his wardrobe must have cost him somewhere around \$1000, maybe more, for the year. Not to mention the cash he must have spent in constant phone calls and personal contacts with the studios to achieve such a record. So his work netted about \$30 a week or less for his own use. Thousands of other extras were lucky if they earned enough to cover expenses, let alone a little surplus for themselves. The silver screen is hardly a golden pathway for the rank and file.

By  
R.  
Thritis

A newspaper story stated that Sidney Franklin was awarded \$7000.00 damages because Columbia described him as a "bull-thrower" instead of a bull-fighter in its treader treatise called "Throwing the Bull."

This should be no surprise to any studio. They're accustomed to paying thousands of dollars for bull-throwing.

Publicity comes high.

Headline in Los Angeles paper says:  
STATE SPINACH ACREAGE TO  
BE INCREASED THIS YEAR

Looks as if the Mac West fad had fizzled out.

The illustrious Mr. Walter Winchell, with his customary subtlety, took a running jump at the

# CINEMAC

By ROBERT TOLSON

(With sauce for those who like it)

picture industry in a recent broadcast. Referring to the awards made by the Academy of Motion Picture Arts & Sciences to those responsible for the success of the prize-winning picture for 1934, "It Happened One Night," Mr. Winchell disclosed that something better than orchids had been awarded to Claudette Colbert and Clark Gable for their acting in the picture, to Frank Capra for his direction, and to Robert Riskin for his adaptation. Mr. Winchell cleverly deduced, and pointed out with no little bitterness, that Samuel Hopkins Adams, writer of the original story, had not received even a brief mention. This, Mr. Winchell stated in his precisely articulate manner and fascinating, brilliant phraseology, was "just like Hollywood."

Mr. Adams is an excellent author. His original story was a fine one. Anything he can get, he deserves. With trepidation we point out, however, that the Academy Awards were purely

## FROM

some of the secrets of you are one thoroughly versed but would like to know of the dark room, the branches of the art. Many young aspirants who seek the place of one of the out of the ranks. These are interested:

### The Story

The original.  
Sources of the  
What is Photography?  
The Scenario  
Literary Form  
Continuity.

### The Studio

Plans and Details  
Materials for  
Organization.  
Equipment.

### Directing the Picture Motion Picture Photography

The Lens.  
Nature of Light  
Panchromatic  
Composition.  
Lighting (interior)  
Trick Photography  
shots, miniature



This is the suggestive title of a book just completed by Lewis W. Physioc, and which is inviting the interest of a publisher.

The motion picture industry probably is the only one of such magnitude that does not boast an up-to-date text book. Beside its value as such the book is designed to have a general appeal.

What is your particular interest in the movies? Are you merely a fan who would like to know something of what goes on behind the camera. Are you a writer who would like to direct your efforts to this field, and frequently have asked the questions: Do they prefer a complete script or a synopsis, and how do they put up the new talkie script?

You may even be a producer who would like to know



# RONI

ket.)



Motion Picture Awards, given to the creative artists directly concerned with the actual production of the picture so honored.

Next year Mr. Winchell can pick his own winners. If the Related Warner Boys' production of "Midsummer Night's Dream" is as good as they say, Walter can have the pleasure of presenting a cup to Bill Shakespeare.

Tom Mix, that hardy perennial, came to town last month and brought his circus with him. Tom has the only motorized circus in the country. Every unit of his show has its own special truck and trailer. Each performer has a trailer that fastens to his car, and this constitutes his permanent home. Tom himself has a huge sort of traveling lodge, a large bus that has all the comforts of home—including heat and refrigeration, a complete kitchen, and a bath—and will accommodate as many as five people in case of un-

expected guests. Tom's show drew a crowd of the cinemalites, most of whom are his personal friends. Marian Marsh brought eighty orphans with her to enjoy the show. Andy Devine went in all by himself—he's still a kid. Of course, Arlene Judge and her director-husband had to bring little Wesley Ruggles, Junior, on account of he's a circus fan.

Eddie Adams, the luscious blonde with the vocal cords (blues singer, not hog-caller) says there's a song out now about the winner of the great Santa Anita Handicap. When questioned more closely she croons:

"Stay as Sweet Azucar . . .!"

THE MACARONI BOWL, by the Shovel Boys (they dish it out.) \* \* \* Everyone's moping around the film colony like a bunch of lost souls, now that the Santa Anita track is closed—but

a lot more work is being done. Bing Crosby got so full of the fever he went North with his horses when Santa Anita buttoned up. \* \* \* Frances Dee has a new white evening gown—and of all things, it's made of leather! Every inch of it is of a thin, soft suede, even to the decorative rust-colored flowers adorning it. \* \* \*

Prosperity must be returning. Palm Springs has been full to capacity all this season, and it costs as pretty a penny as you've seen in many a moon to stay there, m'lads and lasses. The El Mirador has had the SRO sign out for several week-ends. \* \* \* Buster Crabbe went down last month just for a swim in the pool. \* \* \* Joan Bennett spent some time there with her small daughter and her pen-juggling husband, Gene Markey. (My apologies—maybe he uses a typewriter.) \* \* \* Lili Damita was there, wearing a white silk bathing suit that would put your eye out. \* \* \* The Al Jolson practically haunted the place. \* \* \* Ralph Bellamy and Charlie Farrell have gone into partnership and built a tennis club on the edge of town. Business has been so rushing they're building two new courts. \* \* \*

Chick Chandler has a hive of bees in his back yard for pets, of all things. And you think he can't pet them—he picks them up and lets them walk around on his hand! \* \* \* The latest film organization is the Victor Club. Only the screen Victors can belong—Victor McLaglen, Victor Jory, Victor Schertzinger, Victor Kilian, Victor Scheurich and Victor Milner (cameraman), and Victor Varconi is the president. They meet and dine at Victor Hugo's. They certainly ought to win SOMETHING! \* \* \* What well-known and highly irascible producer, buttonholed by a couple of coppers for double-parking in front of his own studio door, rained brimstone and fire on the heads of the two cops and demanded that they find and arrest the owner of a blue Buick that was parked (and very sloppily, too) in the loading zone in front of said front door, and thus forced said producer to double-park? The screaming tag is that the blue Buick belonged to the cops. \* \* \* The latest and authentic information is that Greta Garbo (is) (is not) going to return to Sweden (immediately) (soon) (by proxy) (never) (with friends) (to marry). \* \* \*

## KNEE-CAP REVIEW

(No space left on my thumb-nail)

If you are fond of animal crackers with your ice cream, don't go to see "Sequoia," for after watching this tender story of a deer and a puma with a dash of Jean Parker—you will never again champ calously on a single animal cracker, or even a married one.

But seriously, don't miss this unusual picture. Superbly written, and photographed with infinite patience, this story of a strange comradeship of the wild will thrill you and chill you, make you laugh with joy one minute and cry in real sorrow the next.

I cried a little myself over the way Jean Parker was photographed. She is actually one of the cutest kids in pictures, but in this production she looked as if she had had three or four face-liftings that didn't take. She was sacrificed just a little too much for her animal co-stars. Better get a new clause in your next contract, Jean, and don't let any puma up-stage you.

The photography in general was gorgeous, however, and some of the shots of animals were veritable camera paintings. How they achieved their remarkable shots of the child-like comradeship of two natural forest enemies, you will never know, I hope. A couple of the shots even had your little scribe baffled, and he's supposed to know all about those things. So realistic it is, strong men have thrown away their guns and vowed never again to shoot defenseless little beasts.

Forget all about what I've said, grab a fistful of handkerchiefs, and go see "Sequoia" and have a hysterical time of it.

Here we have a quotation from an outstanding movie columnist: "Marlene Dietrich, in New York on a holiday, has been called home for retakes on 'The Devil Was a Woman.' And Josef von Sternberg, who never in his life has made a retake, very humbly admits the picture can stand retakes."

"The Devil Was a Woman" is the production on which Mr. von Sternberg felt called to fill the capacity of director of cinematography as well as director.

Poor horse, that tries to haul the world, alone.

That brings to mind statements given out by Miss Dietrich when she left for her New York vacation. Marlene said, (1) that she is no longer an exponent of "trousers for women," and (2) that she expected to do her bit toward making New York Hollywood style conscious.

By contrast, could she have meant? After all, nowhere in the world are there more trousers with women in 'em.

## FAMOUS FINALES

Let's stay and see the picture again. I know I had a part in it.

# SCRIPT TO SCREEN

ians. Or perhaps you particular department, lemore of the mysteries of the camera and other el, you are one of those y be called upon to fill s who are rapidly falling neing for everybody in-

ing, process shots, cartoons, etc.  
Color Photography.

## The Laboratory

Organization.

Theory of Sensitometry, and its application to the processing of films.

Rack and Tank System of Development.

## Machine Development

Plans for Lay Unit for Both Systems

## The Sound Development

(The value of such a book necessarily must depend upon the authority of the writer. Mr. Physioc's wide experience, versatility and general knowledge should peculiarly fit him for such a task. He is an able writer and has the faculty of leading his reader through a subject in a simple, lucid, convincing manner. His ability as an artist should give value to the many original illustration in the book.

Mr. Physioc needs no introduction either at home or abroad. He is recognized throughout the industry for his cinematic erudition and he comes nearer being a junior edition of Leonardo di Vinci than any man the writer has ever met. He worked with the late Thomas A. Edison for four and one-half years in the sage's laboratories in New Jersey and his writings will be received as ex cathedra wherever offered. *The International Photographer* has the honor to claim Mr. Physioc as one of its able technical editors. Announcement of the publication of "From Script to Screen" will be made in this magazine at an early date.—*Editor's Note.*)

terior).  
ouble exposures, glass  
te shots, double print-



Flying high. Photo by A. Wolfman. Agfa Superpan Film; Leitz No. 1 filter. Developed in p-diamine—glycin.

# MINIATURE CAMERA PHOTOGRAPHY

**DUFAYCOLOR:** The manner in which color photography is progressing lately points to the fact that it may become quite popular in the near future. The latest process available to the miniature camera enthusiast is Dufaycolor, which is at present supplied in the 35 mm. film size. It is a three-color regular mosaic screen process, the mosaic screen being printed upon the base of the film in a unique manner—in the form of fine color lines microscopic in size, about 40 lines to the millimeter upon a layer of collodion of one color. As in the usual manner with such processes the film is loaded into the camera with the base side toward the lens, so that the light passes through the mosaic color screen before it reaches the emulsion. The film is processed by the reversal method, the original film becoming the positive used for projection. Laboratories are already offering processing service for Dufaycolor. The speed of the film is between 17° to 19° Scheiner allowing considerable latitude in the manner of subjects that can be photographed. From the samples I have witnessed, by projection, it appears that the future of Dufaycolor is quite promising.

**News of the Rolleicord and Rolleiflex:** Burleigh Brooks informs us that the 6x6 cm. Rolleiflex will now be equipped with a Zeiss Tessar f:3.5 lens instead of the f:3.8, and will have the new high speed Compur shutter with speeds up to 1/500th part of a second. The smaller 4x4 cm. size will also have the new high speed shutter on the model with an f:2.8 lens.

A new model of the Rolleicord will be supplied with an improved and more beautiful real leather cover, and with an f:3.8 lens. The former model is equipped with an f:4.5 lens.

**New Derby Enlarger:** Another announcement from Burleigh Brooks mentions a new Derby enlarger for negatives 4x4 cm. and smaller, capable of yielding enlargements up to 40 times, and greater. The focusing knob on the lens collar is adjustable to three positions, permitting the lens to be used closer to the negative, thereby allowing such great enlargements. It is also equipped with double condensers, and an all-metal negative holder easily adjustable to four size openings, for 2x36 mm., single cine frame, 3x4 cm., and 4x4 cm. negatives. Other features are also included.

**Paraphenylene-Diamine Hydrochloride:** In the January issue this new developing agent was described, and formulas suggested by its distributors were listed. I presume that many photographers have already experimented with it, having arrived at definite conclusions regarding its advantages, or disadvantages, and have possibly devised new formulas with which to obtain successful results with it. We would like to hear from such photographers telling of their results, and the formulas which they are using so that this information can be passed along for the benefit of other miniature camera users.

The following formula has been used for regular pan-

chromatic and orthochromatic films with good results. If supersensitive panchromatic films are used an additional gram of glycin, and of P.D.H. can be added:

P.D.H.	- - - - -	5	grams
Glycin	- - - - -	5	grams
Metol	- - - - -	1/2	gram
Sodium sulphite (anhydrous)	- - - - -	37.5	grams
Water, to make	- - - - -	500	c.c.

## Developing Time

60°F. (16°C.)	- - - - -	36	min.
65°F. (18°C.)	- - - - -	30	min.
70°F. (21°C.)	- - - - -	25	min.

**Metol in Paraphenylene-Diamine Formulas:** Photographers who have been using p-diamine have no doubt noticed the tendency of this agent to readily attack the highlights, developing them to such an extent that at times they appear over-exposed, and not developing the shadows so as to properly bring out the detail in them. For this reason many workers are now incorporating metol in the p-diamine—as the inclusion of metol in the above P.D.H.—glycin formula. Metol has opposite qualities to that of p-diamine. It brings out the detail in the shadows which otherwise would be lost, and its use in conjunction with p-diamine does not entail sacrifice of too much fineness of grain.

**A Tip on Print Flattening:** This process can be performed in a little quicker time with good results if the backs of the prints are moistened with a 70 per cent solution of alcohol (ordinary rubbing alcohol obtainable at any drug store) before being pressed, instead of water. The alcohol can be applied a little more freely than water for it evaporates quickly.

It is best to wait until the prints are bone dry before applying the alcohol; they can be dried in quick time if all surplus water is blotted off them when they are removed from the wash water to be set aside to dry.

**More on Individual Development:** Last month a brief discussion was included on the individual treatment of miniature negatives, according to the subject photographed. Perhaps it would simplify matters if a few different types of subjects were mentioned and the change in the developing time necessary to render them properly. These alterations of the developing time are approximate, being intended as a guide for the miniature worker in developing his negatives.

Landscapes and architectural subjects can be developed from about 20 to 40 per cent greater than the normal time, and portraits should be developed for one-third to about one-half less, according to the type of lighting and film employed. Subjects taken on dull days, or in flat

CINEX TESTING MACHINES

CINEX POLISHING MACHINES

**BARSAM-TOLLAR MECHANICAL WKS.**

7239 Santa Monica Blvd.

Phone GRanite 9707

Hollywood, California



shadowless lighting will require an increase in developing time of 50 per cent, or even greater. On the other hand subjects photographed in bright light casting pronounced shadows should be given a decreased developing time of 10 to 20 per cent. Photoflood and Photoflash lighting usually tends towards extreme contrast, which calls for about one-third reduction in the normal developing time.

As it has been mentioned the above figures are approximate and intended as a guide in developing negatives of different subjects. The type of film used, and the exposure given are also factors which will determine the alteration necessary in the developing time; and the photographer should bear in mind the increase in graininess with an increase in developing time, especially if a fine grain type of film is not employed. A little experience with the type of film, and developing formulas used is called for before the photographer can arrive at definite figures of the change necessary in the developing time, for different subjects.

**Green Filters:** With summer rapidly approaching many workers will be considering the acquisition of additional filters to their equipment, and naturally the new green filters will be given thought. Some photographers are still puzzled about the manner in which such filters function, and why they are recommended as ideal for use with both orthochromatic and panchromatic films. The usual yellow filter we know holds back a portion of the blue and violet light, according to its depth, and so helps to overcome the excess sensitivity of the film to the shorter wave-lengths of light. Particularly do we feel the need of this service of the filter when we are photographing blue skies.

Green filters also hold back blue light, and in addition some red light. For orthochromatic films they are suitable because of their retarding action on the blue light, the holding back of red light by the green filter is of no consequence in this case for orthochromatic films are not sensitive to red.

The modern supersensitive film is usually too sensitive to red besides blue, and the green filters are suited for use with such films because they hold back a portion of the red light, besides the blue. In the selection of filters the number offered by the market may lead the amateur to think that to have a suitable set entails considerable expense and the necessity of carrying around about a dozen filters. However, the run of work covered by the average miniature camera photographer will

By AUGUSTUS  
WOLFMAN



not require more than three or four filters. Two yellow or green filters, of different density, and a light red filter such as the 23-A will be found to serve for practically all purposes.

**The Addition of Bromide to D-76:** Eastman Kodak Company states that finer grain can be obtained with the popular D-76 formula by the addition of bromide. However, this is accomplished at the expense of loss of emulsion speed and increased time of development. An idea of the effect of bromide on the relative speed and the time of development can be had by referring to the table below, for which was used Panatomic film:

Grains per Gal. Formula D-76	0.6 Low Contrast	0.8 Normal Contrast	1.0 Above Normal Contrasts	Relative Speed
0	8 min.	15 min.	25 min.	100
60	9 min.	16 min.	27 min.	75
150	15 min.	23 min.	40 min.	50
300	20 min.	30 min.	55 min.	25

It will be noticed that when 300 grains of bromide are added to a gallon of developer it is necessary to give as much as four times as great an exposure in the first place as when developing with D-76 without the additional bromide. It is suggested that workers who wish to try the use of additional bromide should add 60 grains to each gallon of developer.

**Mixing the Developer:** At times the amateur may remove a processed film from the tank, notice that it is badly fogged, and wonder why. In many cases it is

(Turn to Page 28)

## BACK — GROUND — PROJECTION

— STEREO — PROCESSING —

### GEO. J. TEAGUE

Rock—Steady

Mitchell or

Bell & Howell

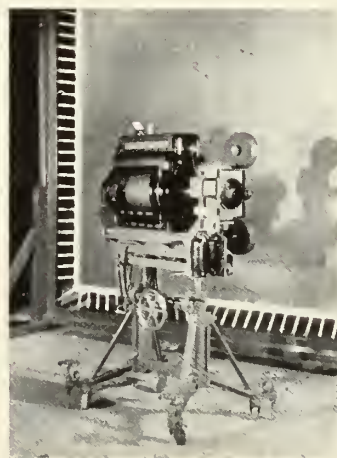
Registering

COMPLETE RENTAL SERVICE

### GENERAL SERVICE STUDIO

Hollywood

Equipment Europe & Hollywood  
MACHINES MANUFACTURED



# THE SPEED OF LENSES

By F. M. STEADMAN

(Being comments on the November and December articles on that subject by Messrs. Melson and Lawrence of Bausch & Lomb in *The International Photographer*.)



MELSON and Lawrence explain correctly that the volume of light is a factor of lens speed and that this volume is "regulated by the aperture of the lens." They show that in the same lens a stop having half the diameter of another works at one-fourth the speed because it passes a light cone which has one-fourth the volume of the larger stop.

All this is correct, but they would have made their mental picture yet plainer if they had emphasized the fact that the true seat where the intensity is produced by this light, is the *individual salt grains* in the sensitive film. They probably did not do this because they considered the matter already understood by their readers, since it is commonly known that the  $F$ /values of lenses are computed relative to a point on the film.

But in explaining the variations in speed when different focal length lenses are used, they say that "the volume of light alone does not determine the speed," explaining that—"As the light travels away from the lens, its intensity is diminished." They illustrate this weakening of the light in their Figure 21, which figure is in fact, the same in principle as the common point source illustration in the school physics books, which show lines spreading from a single point on a candle flame.

That is to say: After correctly building up the true and basic idea that the working speed of a lens is "regulated by the aperture of the lens," they proceed to annihilate the lens apertures completely, illustrating them in the figure mentioned, as a point. In other words: In order to prove their problem they first completely ignore the factors of that problem.

I would ask Messrs. Melson and Lawrence (when dealing with lenses of different focal length) if the independent salt grains have *ceased to be the recipient of the energy* which plays upon each from the whole stop area.

I hold that no exposure was ever made in a camera except by the action of light from the whole stop area as it converged upon the independent grains of salts in the film. When they ignore the apertures and compare them to a point, as they do in their Figure 21, they destroy the problem completely by taking away *volume*, the working power which they had rightly developed in the first part of their article as a fundamental factor of lens speed.

They state: "If the focal length—the distance of the plate from the lens—is different, the volume of light alone does not determine the speed . . ." They then, at some length, proceed to develop the fact that with altered focal length, the speed varies inversely to the square of the focal lengths. They had no need, however, to apply this law to the spreading of the light from a point, because it applies just the same to the change in the volume of the light as it converges from the whole stop to a single grain of salts on the film. Thus: If a stop one inch in diameter in an eight inch focal length lens ( $F/8$ ) be used in photographing some small object exact size, the lens and bellows must be drawn out another eight inches from the film to do so. The cone of light which now converges from that same stop to a grain of salts on the film will be sixteen inches long instead

of eight and this stop becomes, in fact,  $F/16$ . The idea of the light converging to a point from the stop area is preserved and the same mathematical law applies as it does for the light spreading from a point. It is seen that the volume alone modifies the lens speed in spite of their assertion to the contrary.

There is no other way by which a grain of salts can be affected, other than by the influx of energy to it.

This is true in open nature as well as in lenses. No molecule of matter can possibly be illuminated by light which issues from a point for the simple reason that it cannot receive more than a *single ray of light* from such a point. Neither visibility nor measurable intensity was ever created by a single ray of light.

This point source theory lies entirely outside of the functioning of light in nature. It is fantastic and completely theoretical and inapplicable to nature. It includes no possible problem of intensity because it ignores *quantity* in light sources. Intensity is created AT points (molecules) not BY points.

In photography, for example, observe the functioning of quantities: A faster film requires less exposure than a slower one. (Duration of time.) A brighter subject requires less exposure than a weaker one. (Variations in the degree of brightness, as of surfaces to be photographed.) A larger stop requires less exposure than a smaller one. (Variations of volume or solid angle in the light pencils which converge upon the salt grains.)

These factors of brightness cannot be ignored and preserve the problem. On the contrary they must be assembled into a studiable plan for use in the schools.

Flammarion said that the intensity on the several planets as created by the sun, depended solely on the "extension" or size of the sun in the sky of the different planets. This is the true law, which Melson and Lawrence developed at the beginning of their article in dealing with the apertures of a lens. This also is the law made clear by the Rumford photometer, where the flames are dealt with as entities instead of points.

This Rumford photometer is illustrated in Millikan and Gale's "A First Course in Physics" (Edition of 1906, page 393). Flames are considered as functioning entities. These authors also speak purely and correctly in *quantities* in discussing the matter of "Candle Power." Yet they use the common point source illustration on page 392, where the flame (the cause) is ignored as an entity.

This is done without any explanation to students regarding the contrary nature of these two plans of study. The result is the public ignorance of light which we know exists today, with the almost universal practice of snap shooting in amateur photography.

Now the truth is that, regardless of the distance of the areas from the flame, these illuminated surfaces are made up of molecules of matter each one of which must be independently illuminated by the light which comes to it from the *WHOLE* flame, precisely as shown by Millikan and Gale in their discussion of "Candle Power" and in their use of the Rumford photometer.

I would respectfully inquire of Messrs. Millikan and  
(Turn to Page 29)



# *Cameramen's* INSPIRATION

---

CAMERAMEN long ago decided that Eastman Super Sensitive "Pan" is fit company on any flight of genius. And results vindicate their judgment. For four years in succession the great bulk of the really inspired motion pictures have been photographed on this superlative film. Eastman Kodak Company, Rochester, N.Y. (J. L. Brulatour, Inc., Distributors, New York, Chicago, Hollywood.)

---

EASTMAN *Super Sensitive*  
*Panchromatic Negative*



# More About the Crosene Color Process

By SILVIO DEL SARTO

The March issue of *International Photographer* announced to the motion picture industry the final development of a new method of color reproduction on the screen. The article described in a somewhat general way the Crosene Four-Component Additive system in its application to color cinematography.

Some further information concerning the Crosene Process may be of interest to our readers at this time.

It was pointed out in the previous article that this new color system exists as a four-component process for the reproduction of all colors within the visible spectral range. These four color components are derived from an original two color negative separation recorded on a specially treated bi-pack film.

A bi-pack negative, as is well known, will separate spectral light into two ranges: one, the orange-red, or lower end of the spectrum; and the blue-green, or upper end. Crosene has devised a method whereby each of these original monochrom separations may be separated further into precise derivatives of specific color value. That is to say, after the bi-pack negative has split the spectral light into two wave-length ranges (400 to 580 and 580 to 700), Mr. Moreno, the inventor of the Crosene Process, has worked out a method whereby any wave-length which falls within either of these two ranges may be precisely selected in the laboratory for reproduction on the screen, provided such bi-pack film has been treated by the Crosene Process before exposure. This explains to some extent the remarkable latitude possessed by the system for the reproduction of any color within the visible spectral range. The Crosene Process is not limited to four components, but because a four-component system lends itself most readily to the conventional practices of motion picture reproduction today, Crosene has adopted it.

With the exception of lenticular base film and similar additive processes, the color components of any additive system must be at once both identic and isomorphous if perfect registration is to be achieved on the screen; and in addition, each component must be represented within the area of a normal frame if multiple frame advancement is to be eliminated and a normal film speed maintained. The Crosene Process does not depend on a specialized positive film base for its color

values. The four components of the Crosene Process are represented by four identic isomorphous frames of different color value within the area normally occupied by a single frame, and each of these reduced frames passes light through its corresponding color filter during projection. The four frames represent color values derived from the red, yellow, blue and green sections of the spectrum.

In addition to the practical advantage which this arrangement offers, there is also a physiological advantage which cannot be overlooked. The more color sensations the retina of the eye receives, the less fatigue will be felt by the observer. Hence a three color process is less tiring than a two, and a four less than a three.

Although there are four reduced frames within the area of a conventional black and white frame, actually the image itself has been reduced but one-half. It might seem that such a reduction must give rise to "grain" trouble when the image is increased to normal screen size. Such, however, is not the case. When the images from the original negatives are optically reduced so also is the negative "grain"; and when the final release prints are obtained, the positive "grain" which normally might be expected to be present, is so small a factor as to be negligible because the four frames are superimposed on the screen and the location of the emulsion particles of each frame varies to give an even smoother effect than normally.

The Crosene Process possesses three very great advantages, which are expected to completely revolutionize current practice in color cinematography. The first of these is the precision with which any color within the visible spectral range may be faithfully and consistently reproduced on the screen; the second is the economy with which this may be done; and the third is the time element in production, including the making of release prints, which compares favorably with conventional monochrome practice.

The Crosene Process is now able to give to the producer a greater latitude of color rendition on the screen and, which is of the utmost importance, at exactly the same cost for his release prints as he would normally pay for black and white.

*Res ipsa loquitur.*

(In subsequent issues Crosene will publish other articles concerning the Crosene Process with specific references to camera and projection technique, application to other branches of photography, and laboratory technique in the production of Crosene Color.—*Editor's Note.*)

## THE 1935 ROLLEIFLEX SALON

An exhibition of photographic prints made by Rolleiflex photographers will be shown on May 15, at the new enlarged display and show rooms of Burleigh Brooks, 127 W. 42nd St., New York.

Col. Edward Steichen, internationally renowned authority and recognized as one of the world's leading photographers, will constitute a one-man jury to judge the prints submitted to the 1935 Rolleiflex Salon.

A number of awards will be made to contestants whose work is adjudged outstanding by Col. Steichen. These awards will be comprised of cameras, and other photographic materials and successful participants may select any type of camera or photographic accessory which they desire.

All in all, there will be approximately 45 awards amounting to \$300 in value. The first award will be a first class, eighteen-day Caribbean sea cruise, fully paid on the beautiful S. S. Pastores, of the Colombian Steamship Lines, Inc.; the second, \$50; the third, \$25, and a number of smaller awards, all in merchandise.

Contestants will be limited to four prints each. Sizes of mounts must not exceed 16x20 inches. Prints need not necessarily be enlarged.

The exhibition is open to everybody. Further details, labels, etc., from your dealer or write to Burleigh Brooks, 127 W. 42nd Street, New York.

Please mention The International Photographer when corresponding with advertisers.



## "THE BIRTH OF A NATION" IN RETROSPECT

(Continued from Page 5)

The photography of *The Birth of a Nation*, once so highly praised, has in recent years come to be depreciated for its "primitism." And contrasted with the translucent sheen or brilliant surface-finish of Hollywood photography, the unpolished texture of Griffith's shots might superficially strike one as a sign of crudity. This, however, is the shallowest of criticisms. The most sophisticated finish that modern laboratories are capable of providing would be entirely out of key with the emotional temper of this picture. It would have been a disastrous travesty upon the fine, plain and definitely heroic temper of the period to have rendered it in visual terms strongly suggestive of the highly polished surfaces of modern machinery. Within the conditions of its framework, G. W. Bitzer's photography is excellent. What it lacks in unnecessary technical finish, it vastly makes up for by its richness of imaginative overtone and a certain quality of almost documentary authenticity. The battle scenes, in particular, are, like Matthew Brady's famous photographs of the American Civil War, splendid monuments to the period.

The photographic style which Griffith and Bitzer evolved in *The Birth of a Nation* is marked by an emphatic individuality. There is a great predominance of extreme long shots, even in the interior scenes. The effect is at once to place the action in a dimension apart and to brighten the sense of illusion. This curious feature, which might be interpreted as a subtle use of the "magic of distance," is one of the main secrets of the great spell-binding power of Griffith's films. There is also an abundance of very sensitive vignette-shots and cameo-like profile shots, and here again it should be noted that the

photography is beautifully wedded to the subject-matter, which is at once Victorian and Old South. In the Civil War scenes his use of various devices is versatile and extremely elastic—he frequently uses a telescope effect to focus the attention at a great distance upon some object. A good example occurs after the title: "The masked batteries." Griffith irises-in, and *holds the iris* to the general shape and size of a telescope-lens, upon a line of smoke-clouds rolling from a distant mountainside. In the battle scenes and also in most of those showing the ride of the clansmen, his use of long perspective-shots is a conscious and purposeful method calculated to add to the sense of magnitude, which is part of the epic quality of the film. The vast sweep of these canvasses is truly daring, and altogether in keeping with the scope of the theme. All in all, a thoughtful consideration of these and many similar technical devices leads inescapably to the conclusion that no other photographic style could be better adapted to this material.

The question of the montage, or rhythmic construction, of *The Birth of a Nation* has often been debated. Certainly in the light of the complicated and frequently abstract operations of Soviet technique, the picture cannot be said to possess a highly developed montage. However, montage in the grand elemental sense it distinctly possesses and, in fact, this aspect constitutes a most fruitful source of study for the film student. The rhythmic structure of the film is its most basic and signal feature. In this connection certain noteworthy observations may be made: The rhythmic pattern generally, but not always, obeys the internal drive and economy inherent in the action. The threads of the story are interwoven with a

# The Mechanical Needs of the Industry

## Manufacturing Motion Picture Equipment

Developing Machines

Laboratory Equipment

General Machine and Engineering Work

Under Water Camera Equipment

Special Projection Equipment

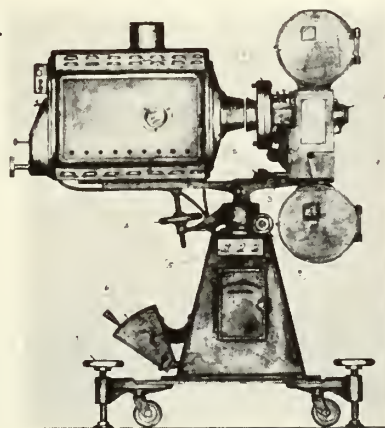
Synchronizing Devices

Optical Printers

Camera Booms

Miniatures

"Props"



# H. W. HOUSTON CO.

1041 NO. SYCAMORE AVE., HOLLYWOOD, CALIF.

HEmpstead 6732

definite consciousness of filmic pulse or pace, on the one hand, and an acute sense of the exigencies of dramatic suspense on the other. Griffith's timing-instinct is always superb and is equalled only by his balanced and rational sense of architecture. This is proved by his mastery of the enormously complicated episodic material of the story of *The Birth of a Nation*. In contrast to Eisenstein, his unit of reference is the scene rather than the individual shot. Thus, his cutting-pace is slower, though it is much faster than the pace prevalent in the regular Hollywood product. The vigorous interplay of scenes, the ingenious dovetailing of incident, the powerful counterpoint of thematic elements, of motifs—all these may be designated as the dynamic characteristics of Griffith's montage. The added fact that he often cuts for pure overtone, as in the ride of the clansmen, merely goes to show that he was able to transcend his basic method.

From the preceding remarks, something of the concrete technical value of this picture ought to be plain to the film student. Viewed retrospectively, the historical significance of *The Birth of a Nation* looms greater with time. Apart from its lasting worth as a creative achievement, it established so many precedents in the realm of cinema, that it would be tedious to enumerate all of them. Because of its length, its division into two "acts," the two-dollar admission prices, and principally, because it was the first film to be presented with an original orchestral accompaniment (Joseph Carl Breil composed the score which consisted mainly of original music and American folk-themes) it lifted the motion picture from the lowly position of a tag at the end of vaudeville shows to the level of the so-called legitimate drama. This tour de force had a constructive effect in two ways. While it served as a rebuke to reactionary and prejudiced critics who, like Walter Prichard Eaton, the last of the theater's "Old Guard," had scorned the movie as an art, at the same time it taught the magnates of the Hollywood film industry a lesson which they had lacked the faith and vision—or more likely the intention—to learn for themselves: *i. e.*, that a film of unassailable artistic integrity, taking two and a half hours to unfold an important historical theme, could also be a gigantic commercial success. A measure of this healthy creative influence later found its way into other American historical films, such as *The Covered Wagon* and *Cimarron*; and even into German productions such as *Passion (Du Barry)* and *Deception (Henry VIII)*.

Happily, the stigma of having initiated the "star system" cannot be laid at the door of *The Birth of a Nation*. Its cast, however, includes the names of two dozen leading players, of whom the majority have since become famous, either through their connection with this production, or through careers that began with it. After twenty years, at least half of these remain familiar names to

movie fans throughout the Western World—Lillian Gish, Henry B. Walthall, Mae Marsh, Mary Alden, Ralph Lewis, Wallace Reid, George Siegmann, Elmo Lincoln, Walter Long, Donald Crisp, Raoul Walsh and Elmer Clifton. The last two are known today as the directors of *The Thief of Bagdad* and *Down to the Sea in Ships*, respectively.

Late in February, 1915, advertisements, heralding the arrival of the Griffith masterpiece, claimed the "Dawn of a New Art Which Marks an Epoch in the Theaters of the World." This pronouncement was no mere press agent's blurb. It was the very nearly unanimous opinion of the intellectual and theatrical world of America. Sir Herbert Tree, over here on an acting tour, declared the picture signified "the birth of a new art—and a new artist," and less than a month after the New York premiere, a critic, Richard Barry, writing in the Magazine Section of the New York *Times*, hailed Griffith as "a producer without a rival . . . a generalissimo of mimic forces whose work has never been equalled . . . a triumphant Columbus of the screen." Perhaps the history of cinema reveals no other occasion on which a film of the highest order of importance has elicited rapturous and instantaneous approval from the public and critics alike.

A concluding word: A plan to re-make *The Birth of a Nation* under the direction of D. W. Griffith has been lately under the serious consideration of some of the original stockholders. Nothing, in the opinion of this writer, could be more ill-advised, incongruous or downright dangerous than this move. It does not affect the mind less disconcertingly to hear, say, of a proposed plan to re-paint the Mona Lisa or The Last Supper of Leonardo da Vinci, to make second versions of these, than to hear of this vulgar absurdity of having Griffith re-make *The Birth of a Nation*. The unique sign of a true work of art is precisely its irreproduceability. Why tempt Fate and the wrath of critics into a ridiculous and deadly anti-climax by tackling historical material which has already been so superbly realized that it defies all efforts at reproduction? The artistic folly of this is ghastly; its moral irresponsibility, worse. An essentially mediocre production, devoid of the fine heroic sweep that made the original and authentic work great, but loaded, on the other hand, with the same high explosives of racial strife and faction, unpurified in this case by the masterful agency of Art, would cause endless havoc and might even bring in its wake an intensified reaction of screen censorship and suppression. Such a production would definitely not swell the backers' pocketbooks with the same fat profits which they anticipate, and at the same time it would contribute nothing to Griffith's reputation. It would serve no useful purpose beyond that of providing an expensive object-lesson of the truth that the basis of any great film is not the story, but the creative treatment, and that if the identical story is filmed twice, it does not signify that the second film is the same film as the first, much less a better one.

Merely human considerations—the memory of the bloody race riots provoked by *The Birth of a Nation* in years past—should dissuade the stockholders from their plan. In any case, should they ignore these warnings, the dismal nemesis of a colossal artistic anti-climax, together with justified racial and class war, awaits their misguided efforts.



**MAX FACTOR'S**  
NEW  
*Satin Smooth*  
**LIQUID FOUNDATION**  
A REVELATION IN FACIAL MAKE-UP



# The Film Industry Solves Another Problem

How Successful American Films May Be Translated into Foreign Languages at Little Cost to the Producer

By KAY CAMPBELL

The film industry's language barrier problem has been solved, according to claims made by George P. Regan and Albert R. Day of International Cinema, Inc., by means of their new translation process.

In this process, English speaking actors and actresses will speak foreign languages with perfect similitude, and successful American films may be translated into German, Spanish, or French at little expense to the producer.

Based on the principle that the visible manifestation of speech is the same in all languages, they have invented a new translation process which is accomplished by the use of English code words and a new sound head which will start or stop in 1/200 second, to be used in dubbing the close-ups. Previously, when a film was dubbed in any foreign language, the chief shortcomings lay in the close shots. If these synchronized correctly at all, the meaning was distorted. Now, the long shots are left as originally made, but in the close-ups—in place of the original script, the actor will use code words which carry out the meaning and the spirit of the lines, if not actually the same words.

For example, in a portion of the "Invisible Man," the actor cried out: "Don't let the police see you," which carried the same movements as the Spanish version into which it was translated: "No es la policia." The original script had read the same as the Spanish translation—"That's not the police," a sort of fearful query to the girl in the cast whose name was Myra. In the English version where he calls her by name, it was translated into a Spanish outcry: "Look," or in Spanish, "Mira!" Again the lip movements were identical.

If the film had been intended for a German translation, the actor would have said: "I shan't ride in a police car," which offers the same lip movements as "Das ist nicht die polizei." Or, if it were for a French audience, the actor could have said: "Don't let pass the police," identical with "Ce n'est pas la police."

In dubbing the film, the new Regan-Day sound translation equipment is used, in which the synchronizing device is operated by means of a magnetic clutch and two

photo-cells which make it possible to instantly start and stop film at the rate of ninety feet per minute, without flutter or sound distortion. This synchronizing machine consists of a special reproducing head, heavily filtered against vibration and fitted with an extremely quick acting magnetic clutch. The film is fed from a supply reel, over a series of idling rollers, over a sound drum and back to the take-up.

The sound drum is sprocketless, having a series of spirally arranged holes to which the film clings because of the vacuum. The drum is hollow. Two photo-electric cells are used. One is utilized in the normal manner as a sound pick-up. The other is actuated by an exciter beam, reflected by a mirror. It operates relay circuits, which disengage the magnetic clutch, immediately stopping the film, whenever modulation strikes the pick-up. It starts or stops in 1/200 second.

The entire process, codifying system, synchronizing mechanism and auxiliary equipment is protected by patents, in the United States and all countries.

This process culminated three years' effort on the part of Albert Day, University of California engineer and inventor, to secure the perfect illusion of reality in the translation of languages. George P. Regan, president of the company, has also been working on the language and dialogue problem. Others interested in the company are: H. T. James, formerly owner of the Bennett Film Laboratory; A. J. Guerin and A. C. Snyder, formerly associated with Consolidated Film Industries; and Bonar Russell, Pacific Coast banker.

Construction work is now in progress on a Class A structure where the latest laboratory equipment will be installed as rapidly as building conditions permit, at the corner of Santa Monica Boulevard and Citrus Street. The initial laboratory installation will provide for a plant capacity of 150,000 feet of film positive and 75,000 feet of negative an eight-hour day, Regan announced. The plant will represent an initial investment of \$150,000. The main building under construction will have a ninety-foot front on Santa Monica Boulevard and one hundred and forty-foot depth.

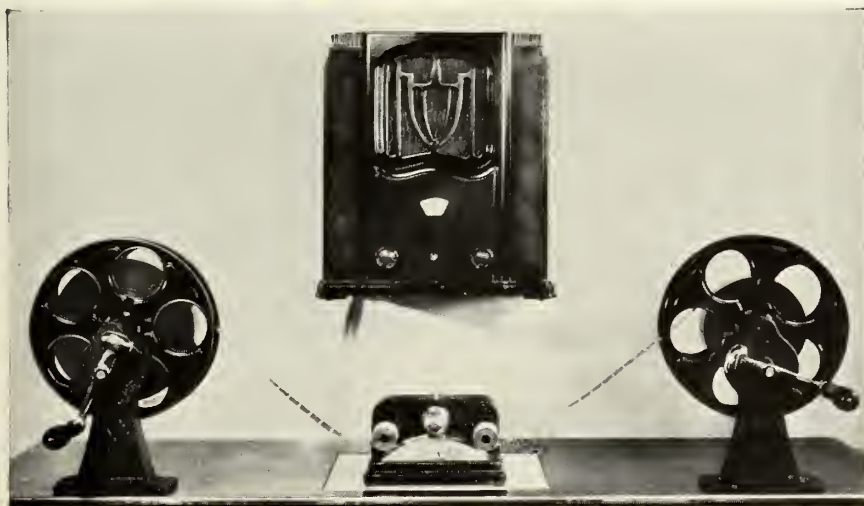
## "SOUNDOLA"

For Editing, and Inspecting Sound  
Track Only—Positive or Negative

Will Not Scratch Negative

Does Not Heat—Operates From  
Any Lamp Socket.

Price Amplifier and Sound Head,  
\$150.00



Hollywood  
MOTION PICTURE EQUIPMENT CO. LTD.

645 NORTH MARTEL AVE.

CABLE ADDRESS ARTREEVES

HOLLYWOOD, CALIFORNIA, U.S.A.

## MOTION PICTURE SOUND RECORDING

(Continued from Page 11)

ter bay of each channel is found necessary to permit easy interconnection between the channels. These multiple jacks are of a different type from those used elsewhere in the bays, as may be seen at *D* in Figure 3.

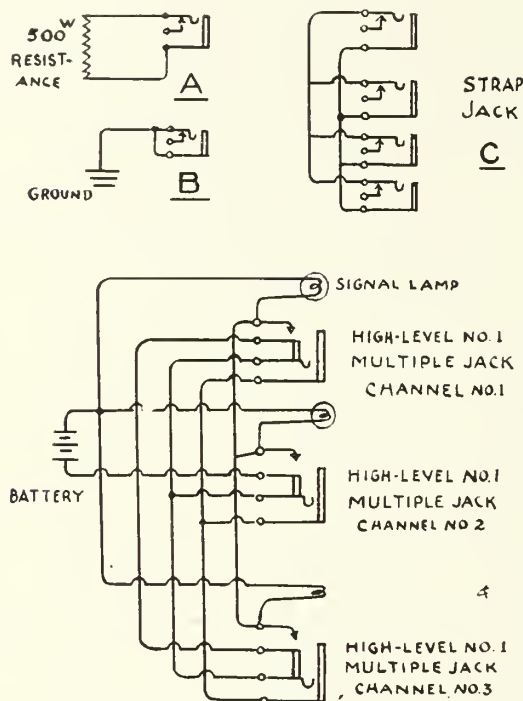


FIG. 3. Special Jack Connections.

A miniature flashlight bulb set behind a colored lens is mounted in the jack strip just above each multiple jack. The connection of a single jack and bulb in each channel of a three-channel installation is shown in the installation. One battery will furnish current for the signal lamps of a large number of jacks. If there were more than three separate channels in the installation, the additional jack that is required for each added channel would be connected to the three jacks shown in the illustration in exactly the manner represented. Of course, there are a dozen or more jacks of the type shown in each channel; and each jack is connected to its corresponding jacks in the other channels. There is no connection, however, between the individual jacks in a channel.

These multiple jacks are divided into low-level and high-level groups, with six or more jacks in each group, and the individual jacks in each group are numbered. If a plug, which for example might be connected to the output of an amplifier in channel No. 2, were put into the high-level No. 1 multiple jack of that channel, that signal light and the signal lights on the high-level No. 1 multiple jacks of all the other channels would light. This serves as a warning that the high-level No. 1 multiple circuit is in use, and that if a plug is inserted in a jack having that designation in any channel other than channel No. 2, it will pick up the output of the amplifier in No. 2 channel.

The multiple jacks thus make it easy to connect the amplifiers or equipment in one channel in place of the corresponding amplifiers or equipment in any other channel when the need arises.

*Plug Polarity*

Care must be observed in connecting the amplifiers by means of the jacks and patch cords that the proper

polarity is maintained. Otherwise, phase differences may be introduced. In the case of the single-hole jacks shown in the illustrations, the impossibility of a reversal of polarity by the wrong connection through a patch cord is assured by always connecting the grounded or common sides of all circuits to the frames of the jacks, and by connecting all plugs to the cords in a uniform manner. That is, the tips of the two plugs terminating a patch cord are connected together, and the sleeves likewise are connected together.

With the standard two-pole plug used in studio sound equipment, one edge of each plug has a series of notches cut into it. When the plug is put into a jack, it is held in the right hand with the thumb of the right hand pressing against the notched edge and the back of the hand uppermost in a normal manner. If all plugs are inserted in this manner, no reversal of polarity occurs in any part of the circuit. Only the tips of these plugs are used, as shown in Figure 4, the sleeves being connected to the electrical shield that encloses the conductors that connect the plugs together. The metal portions of

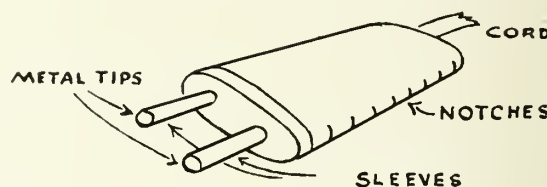


FIG. 4. Special Double Plug.

the jacks that bear against the sleeves of the plug when it is inserted are connected to the ground bus, and thus serve to ground the electrical shield on the patch cord.

*Impedance Matching*

In patching amplifiers and apparatus together in new combinations, the impedances of the circuit that are joined must always be taken into consideration to avoid impedance mismatching and the resulting reflection loss and phase distortion. In other words, a 500-ohm circuit must be connected to a 500-ohm circuit. It is very bad practice to connect a 500-ohm circuit to a 200-ohm circuit unless an impedance-matching network is used between them. Very little harm will result, however, from feeding from a 200-ohm circuit into a 500-ohm circuit. To summarize: For best operation impedances must be matched at all junctions; where that is impossible it is permissible to feed from a lower to a higher impedance circuit as long as there is not too great a difference between them; but a higher impedance circuit must *never* be connected to a lower impedance circuit if distortion, loss of quality, and accompanying faults in recording are to be avoided.

*A Useful Test Panel*

An extremely useful test panel that is invaluable as an addition to any small sound recording installation, or to any public address system or radio laboratory, is illustrated in Figure 5. As in all the illustrations accompanying this chapter, single-hole jacks are shown to simplify the explanation and the diagrams, and to permit the technician to duplicate the equipment with apparatus that may be purchased on the open market. If this test panel is to be used in a sound studio, the circuit diagram will have to be modified to accommodate two-hole jacks.

This test panel is formed of a strip of bakelite supporting twelve single-hole jacks, and it is accompanied by a blank panel of metal or bakelite on the back of which are mounted the transformers and resistors. (The resistors must be of the non-inductive type.) The jack



strip and panel should be of the standard nineteen-inch length so that they may be mounted in a relay rack with the sound amplifiers.

The two transformers used are the standard type of impedance-matching transformer that is widely employed

provide losses when operated between such circuits of ten and twenty decibels, respectively.

The following five jacks are connected to another impedance-matching transformer that has four windings. When both the primary and secondary double windings

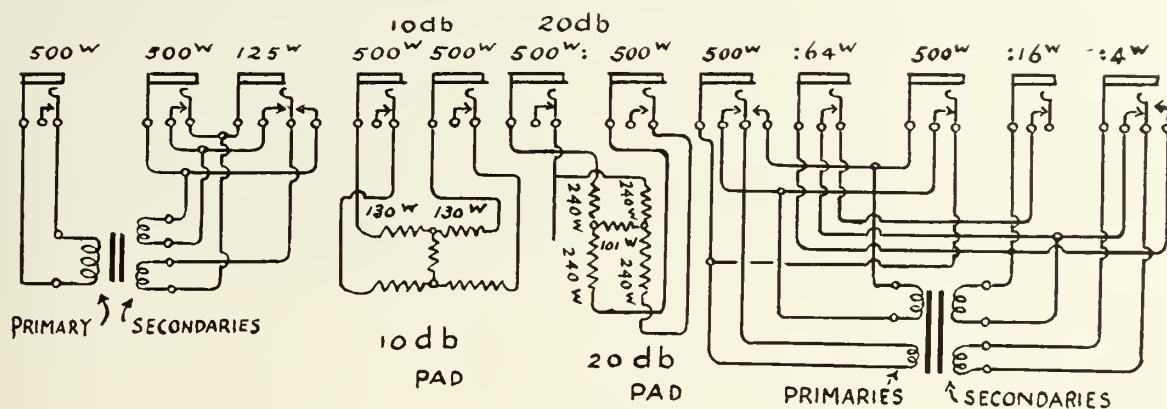


Fig. 5. Suggested arrangement of the test panel.

in sound recording installations. The first transformer has three windings and is connected so that by patching into the first and second jacks a 500-ohm to 500-ohm impedance match may be obtained. This arrangement is used when it is desired to join two circuits of 500-ohms impedance without creating a direct-current path between them.

When the first and third jacks are used, the same transformer provides a 500-ohm to 125-ohm impedance ratio by paralleling the secondary windings. A special jack is required for this purpose, as may be seen. This 125-ohm output may be coupled into a 200-ohm circuit with but little reflection loss (since we know that it is not particularly harmful to feed from a lower to a slightly higher impedance); and it is frequently used for this purpose.

The next four jacks furnish access to two attenuation networks of the *H*-type which are intended for operation between circuits of 500-ohms impedance, and that

are in series, this transformer has an impedance ratio of 500 ohms to sixteen ohms. When the two primaries are in series and the two secondaries in parallel, the impedance transformation is from 500 ohms to four ohms; and when the primaries are in parallel and the secondaries in series, the impedance ratio is 500 ohms to sixty-four ohms.

These thorough descriptions of the jack arrangement employed in sound studios and of the construction of the test panel were presented both with the hope that they would be of use to soundmen and hudding soundmen and that they might be of practical help in the design of small sound recording or public address systems, or aid in the arranging of an experimental laboratory. This method of installing apparatus and bringing out terminations in jack strips should be of particular interest to radio store owners and experimenters, as it contributes to the neatness with which equipment can be arranged in a shop.

## FLASHES FROM THE COLOR-FRONT

(Continued from Page 8)

laboratories and studios all over the world, scientists and cameramen are striving to perfect color-cinematography. The one who succeeds will be he who simplifies a fool-proof system that does not add too much to the cost of production or complicate the process of projection.

Some contend this is a sort of "irresistible force meeting an immovable body" proposition. But cinematographic experts and experimenters recognize "no such animal." They are like the chap in Edgar Guest's poem who, when they said it couldn't be done, proceeded to do it.

There is no last word in any department of human endeavor. As fast as a problem is solved, another one develops out of the solution. That's what really gives zest to life and keeps up the people's interest in it.

If for no other reason, color must eventually be brought to the screen; for the picture audience of today demands life "as is." Proof of this is to be seen in the "hand" accorded a good color short-subject, even in the most lowly of picture palaces. This naturally infers a color cycle that will take many moons to run its course.

## OLD TIMERS

(Continued from Page 12)

I have seen the old-timer take the part and do it without rehearsal.

Some day a producer or a director with an eye for business will quietly round up all these men and women and sign them up on long term contracts as extras. No, he won't be a philanthropist. He will be a smart busi-

ness man who will realize that the talent scattered among the old-timers will save him money and help him make better pictures through their ripened experience of years before the camera.

The background will be worthy of the best he can put in the foreground.

## NOTES ON COLOR

(Continued from Page 15)

### 1. First Development:

Water (125° F.)	- - - - -	2000 ccs.
Metol	- - - - -	13 grams
Hydroquinone	- - - - -	4 grams
Sodium Sulphite (Anhydrous)	- - - - -	100 grams
Potassium Bromide	- - - - -	5½ grams
Ammonia (Spec. Grav. 0.9)	- - - - -	30 ccs.

Dissolve all chemicals in the order given, cool to 65° F., and add ammonia (if ammonia of stronger specific gravity only as available, either dilute same or use proportionately less according to the strength).

Developing time in the above bath with correctly exposed subject is 2½ to 3 minutes at 65° F. This developer will keep in a tight stoppered bottle.

### 2. Wash two minutes.

### 3. Bleaching Bath (Reversing):

Potassium Permanganate	- - -	3 grams
Sulphuric Acid	- - - - -	10 ccs.
Water	- - - - -	1000 ccs.

Bleach until image is clearly visible. Time: about 4 minutes. Bleaching is completed when the image is clear and there is no veiling. A weak light can be turned on after 2 minutes for inspecting negative.

### 4. Wash for about 2 to 3 minutes in running water.

### 5. Rinse for 2 minutes in following clearing bath.

Clearing Bath (2½% solution of Sodium Bisulphite):

Water	- - - - -	1000 ccs.
Sodium Bisulphite	- - - - -	25 grams

### 6. Rinse after clearing.

7. Expose film to strong artificial light (100 watt lamp) for about 3 minutes. The film is then redeveloped in any good metol-hydroquinone bath. Film can be under, but not over-exposed.

The following may be used:

Water (125° F.)	- - - - -	4000 ccs.
Metol	- - - - -	4 grams
Sodium Sulphite (Anhydrous)	- - - - -	200 grams
Hydroquinone	- - - - -	18 grams
Sodium Carbonate (Anhydrous)	- - - - -	75 grams
Potassium Bromide	- - - - -	4 grams

Time of final development: 3 to 4 minutes at 65° F., or even 6 minutes if required. When image is thoroughly darkened, development is complete.

### 8. Rinse thoroughly.

The film is now fixed and hardened and given a final washing. Use weak acid fixing bath . . . wash in running water 20 minutes . . . wipe dry with a viscose sponge to avoid water-marks.

When DuFayColor pictures have been completed, they are ready for use. There are many ways of enjoying their beauty. The most satisfactory method of viewing color film is of course by means of projection. The film strips may be used in the projector as film slides, or better still, each picture can be cut apart and bound between two 2x2 inch cover-glass slides. The glass slides protect the film from danger, and make a most convenient method of not only preserving the pictures but showing them as well. The Leitz Umino projector is equipped to handle the pictures either as film strips or glass slides.

Stereo enthusiasts will be interested to know that by means of the Leica Stereoly attachment, perfect stereo pictures can be made in full color, using the DuFayColor film. As is commonly known, the Stereoly attachment is a simple yet effective device which merely slips over any one of the 50 mm. Leitz lenses of the Leica camera.

New avenues are opened to the Leica owner who desires to combine his stereo and natural color activities. Imagine the thrill of seeing pictures in full third-dimension AND natural color! This is truly the dream of thousands, and is now about to be fully and satisfactorily realized.

To those who have not as yet become interested in color, it

is strongly suggested that they try just one roll—on seeing how easily and simple color photography is with DuFayColor process, they will no longer be content to make black and white pictures.

## MINIATURE CAMERA PHOTOGRAPHY

(Continued from Page 19)

simply due to incorrect mixing of the developing solution, a step which is usually not given the proper attention. Mixing a developer entails the bringing together of various chemicals in the same solution, and this must be accomplished properly if the correct results are to be produced. With many formulas the ingredients are listed in the order in which they are to be dissolved; however, by adhering to the following general rules a developing solution will be properly prepared:

1. *The alkali, or accelerator, should not be dissolved with the developing agent before some preservative (sulphite) has been added.* The alkali increases the developing agent's affinity for oxygen, so that if the sulphite is not added first to absorb the latter, the developing agent will undergo a degree of oxidation, according to the time it is allowed to remain in solution with the alkali before the sulphite is added.

2. *Do not add a second chemical to a solution until the first has been completely dissolved.*

3. *In general do not dissolve the developing agents in water over 125° F., for they are likely to undergo undue oxidation.* P-diamine is an exception to this rule. It can be dissolved practically in boiling water without ill effects.

Three simple rules, but nevertheless if adhered to they are insurance against avoidable trouble.



## THE SPEED OF LENSES

(Continued from Page 20)

Gale regarding the point source illustration (Fig. 441, p. 392), whether or not the flame *has ceased to function*. If it is true that the whole flame functions, then is it not true that each surface molecule on the surface at double distance is one-fourth as bright because the light pencil which converges upon it has only one-fourth the volume or solid angle that it has when the flame is at the closer distance? This is the truth that Flammarion taught for the sun and what the Rumford photometer teaches for flames. It IS, in my way of thinking, THE BASIC TRUTH OF LIGHT INTENSITY. This truth which is essential for education in the schools, has been hidden behind the point source theory for nearly four hundred years.

Using the point source theory, Millikan and Gale annihilate the flame while Melson and Lawrence annihilate the lens apertures. The popular ignorance of light and the haphazard way that photography is practiced should not surprise anyone.

### HIGH SPEED CAMERA

Owing to the interest which has been developed among scientific groups by the amazing results produced by the Western Electric High Speed Camera Timer, Mr. George Lane of Audio Productions, Inc., was invited to demonstrate the equipment and its results before a regular meeting of the local section of the American Society of Mechanical Engineers. The meeting took place on February 26th at the Engineers Building, 29 West 39th Street, and was arranged through the courtesy of Mr. R. B. Purdy.

The entire meeting was given over to the Ultra Speed Camera which Mr. Lane personally demonstrated, following which he showed the group, numbering approximately 125, a demonstration reel of the manner in which this new instrument, which has been called a microscope for time, is used in aiding mechanical industry.

By means of the Camera Timer Mr. Lane has already been able to detect mechanical flaws in rapidly moving equipment that had defied any previous method of determining the trouble.

Bausch & Lomb and all lens and camera manufacturers would be greatly benefited if light were taught in the schools so that lens properties would be understood by the students. In fact, with the true fundamentals of light intensity taught in the schools no special or extra studies of lenses and of surface brightness would be required, since they would be understood from the study of the true basic principles of intensity.

It is a strange stand for these gentlemen to take, to uphold the point source theory, when it is the sole reason for the fact that photography is not scientifically practiced, nor lenses understood.

We should expurgate the point source theory from the physics books and substitute the true quantum or quantity theory, so that students will be able to learn of the functioning of *whole natural light sources* and come to a knowledge of using light with precision in photography and elsewhere.

### "ONCE UPON A TIME"

The Metropolitan Life Insurance Company has published in sheet form the song hit of the three-color Technicolor cartoon, "Once Upon a Time." The music has been placed in this form for the special purpose of bringing home this story of safety to the schools.

The music was written by Edwin Ludig, Music Director of Audia Productions, from which company emanated the cartoon production in the first instance.

## We'll Pay Cash!

WE WANT IMMEDIATELY

Mitchell  
Akeley

Eyemo  
Bell & Howell

De Brie  
Contax

Leica, and Similar Used Cameras

— Also —

LENSES, MOTORS, PARTS, AND CAMERA  
ACCESSORIES

What Have You To Offer?

Write or Wire Today

MOTION PICTURE CAMERA SUPPLY, INC.

723 7th Avenue

New York City

# ROY DAVIDGE FILM LABORATORIES

...

An Exclusive "Daily" Laboratory

...

Quality and Service

6701-6715 SANTA MONICA BOULEVARD  
GRanite 3108

# INTERNATIONAL CLASSIFIED ADVERTISING

Brings results—Rates 45 cents per line—minimum charge one dollar per insertion. For Rent—For Sale—Wanted—For Exchange, etc.

## FOR SALE AND RENT—CAMERAS

**FOR SALE OR RENT**—Mitchell and Bell & Howell silenced cameras, follow focus. Pan lenses, free head, corrected new aperture. Akeley, De Brie, Pathe, Universal, Prevost, Willart, De Vry, Eyemo, Sept, Leica. Motors, printers lighting equipment. Also every variety of 16 mm. and still cameras and projectors. B & H Cameras with old type shuttles silenced \$150. Everything photographic bought, sold, rented and repaired. Send for our bargain catalogue. Hollywood Camera Exchange, 1600 Cahuenga Blvd. Phone HO. 3651. Cable, Hocamex.

**BELL & HOWELL** Professional Motion Picture Camera complete with 35—40—50—75 mm. lenses and Mitchell tripod legs. Also Akeley Camera complete with 2 in., 6 in., 17 in. lenses. Mervyn Freeman, 1960 South Vermont Ave., Los Angeles, Calif. Phone: REpublic 3171.

**EDUCATIONAL CAMERA BLIMP** and Dolly for Mitchell Camera follow focus device, geared free head, three wheels, pneumatic tires, cost \$1250.00, special \$500.00. Hollywood Camera Exchange, 1600 Cahuenga Boulevard, Hollywood, Calif. Cable HOCAMEX.

**GENUINE BELL & HOWELL** 1000 foot magazines in excellent condition \$50.00 each. Four hundred foot magazines \$25.00 each. Four hundred foot Mitchell magazines \$25.00 each. Cases for above \$10.00 each. Hollywood Camera Exchange, 1600 Cahuenga Boulevard, Hollywood, Calif. Cable HOCAMEX.

## FOR SALE—CAMERAS AND EQUIPMENT

**REAL BARGAINS** in 16 and 35 mm. movie equipment and still cameras. Newest types cameras and projectors in all popular makes. Save money on film, lights, lenses and all essential accessories. Our 36 years of experience stands back of every sale. Before you buy, send for our new bargain booklet. Burke & James, Inc., 223 W. Madison St., Chicago.

**DUPLEX PRINTER.** Mitchell 400 foot magazines, Mitchell tripod legs; Mitchell pan and tilthead; Mitchell motor adapter; No. 5 stand 60 inch flexible shaft; B. & H. tripod adapter block; 4 1/4 inch F.2. Cooke Kinic lens; 6 inch Busch F2.5 lens and other miscellaneous equipment. Ed Estabrook, 430 North Flores St., Hollywood. OR. 5003.

**LIKE NEW,** Educational Camera Blimp, geared free head, follow focus device and three-wheel dolly. Cost \$1250.00. Our special \$500.00. Hollywood Camera Exchange, 1600 N. Cahuenga Blvd., Hollywood, Calif.

**MITCHELL CAMERA,** very quiet steel gears, 3 Pan Tachar lenses, Free head, complete studio equipment, excellent condition, \$1300. CAMERA SUPPLY CO., LTD., 1515 North Cahuenga Blvd., Hollywood.

**BELL & HOWELL CAMERA HEAD,** 170 degrees, three lenses, B & H tripod legs and head, beautiful condition, \$750. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

**BELL & HOWELL** and Eyemo Cameras, Lenses, Magazines, Tripods, Moviolas, Spliers, all kinds of Sound and Laboratory equipment. Eastman and Dupont spliced negative, tested and guaranteed, 2 1/2¢ per foot, on daylight loading rolls, \$2.75. Inquiries invited. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood.

**MITCHELL CAMERA**—Like new and guaranteed—silenced Academy aperture, Pan Tachar lenses, free head tripod, 1000 ft. magazines, complete \$2000.00. Hollywood Camera Exchange, 1600 No. Cahuenga Blvd., Hollywood, Calif.

**DE BRIE**—Parvo "E" metal case, Tripod, 5 magazines, cases; special \$275. Eyemo B turret Sound Speed 47mm. F2.5 Cooke—50 mm. F1.9 Dalmeyer—3 1/4-inch F3.3 Cooke, new condition, \$225. Single lens models, \$85 up. Also DeVry's—Lenses, Projectors, etc. Newman's Camera Exchange, 1192 Sixth Avenue, New York City.

## SOUND RECORDING

**LIKE NEW ARTREEVES** portable double head sound recording outfit, with Bell & Howell silenced camera, complete in every detail. A Real Bargain—\$3500.00. Price without camera—\$2500.00. Hollywood Camera Exchange, 1600 North Cahuenga Blvd., Hollywood, Calif.

**ART REEVES,** latest model 1935, double system sound recording installation, factory guaranteed, Automatic Speed Control Motor, Twin Fidelity Optical Unit, Bomb microphone, the only genuine, modern, workable ArtReeves equipment for sale in Hollywood outside factory. Price, complete in every detail, \$2,400. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

**FOR SALE**—Mitchell tripod friction head—good as new. \$150. Box Z, International Photographer.

**SOUND MOVIOLA,** excellent condition, Model UC, price \$450.00; also new H.C.E. Freehead Tripod and Legs for Bell & Howell, Eyemo or DeVry Cameras—\$75.00 complete. Hollywood Camera Exchange, 1600 No. Cahuenga Blvd., Hollywood, Calif.

## FOR RENT—CAMERAS

**TWO THOROUGHLY** silenced Mitchell cameras. Follow focus device, Pan Astro lenses, Freehead—1000 ft. magazines. J. R. Lockwood, 523 No. Orange St., Glendale. Douglas 3361-W.

## THE INTERNATIONAL PROJECTIONIST

**THE INTERNATIONAL PROJECTIONIST,** a monthly magazine published in the interests of the projectionist. Interesting, instructive. Yearly subscription U. S. and possessions, \$2; foreign countries, \$2.50. James I. Finn Publishing Corp., 1 West 47th St., New York.

## WANTED TO BUY

**WANTED—EYEMO, DEVRY, CAMERA,** lenses, tripod, projector, portable. Simplex, Powers, Moviola, 16 or 35 mm. Highest prices paid for anything. ROBERT BLOCK, 1451 BROADWAY, NEW YORK CITY.

**MOTION PICTURE**—Still Picture—Laboratory and Cutting Room Equipment—Lenses—Finders—Tripods. Highest prices paid. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood, Calif.

**WANTED**—Sound head for Powers 6-B projector—35 mm. Address Box 333, International Photographer, 1605 Cahuenga Ave., Hollywood, Calif.

**WANTED**—Golf clubs and bag. J. R. Lockwood, 523 North Orange St., Glendale. Phone Douglas 3917.

**WANTED**—Typewriter desk, combination library and dining table and 10x12, or larger, rug. Phone Hillside 5790, evenings.

**WANTED**—Mitchell camera silenced. State number and full particulars. Box X, International Photographer.

**MITCHELL OR BELL & HOWELL CAMERA.** State full particulars and lowest cash price. Address Morgan, International Photographer.

## CAMERA REPAIRING

**BELL & HOWELL** cameras with old type shuttles silenced, \$150. Hollywood Motion Picture Equipment Co., 645 No. Martel Ave., Hollywood.

**VERY POWERFUL FLOODLIGHTS** of new design. Will burn through a 1000 W. Rifle with Cable—\$5.00. With 12 foot collapsible Stand—\$20.00. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

**MITCHELL MOTOR**—1000 ft. Mitchell magazines. J. R. Lockwood, Glendale. Douglas 3361-W.

**FOR SALE**—75 mm. Cooke Lens. F.2 in Mitchell mount complete. 50 and 75 mm. Astro lenses, mounted and unmounted. J. R. Lockwood, 523 North Orange Street, Glendale. Douglas 3361-W.

**BUYERS READ** these classified advertisements as you are now doing. If you have something for sale or exchange—advertise it in these columns. THE INTERNATIONAL PHOTOGRAPHER, 1605 No. Cahuenga Ave., Hollywood.

**FOR RENT**—25 and 35 mm. lenses, motor adapters, Mitchell Standard tripod head, baby tripod, 400 ft. Mitchell magazines. J. R. Lockwood, 523 North Orange St., Glendale, Douglas 3361-W.

## POSITION WANTED

**DO YOU WANT A CAMERAMAN** who is an expert on studio production; or an expedition cameraman who knows every corner of the world; or a cameraman who thoroughly understands the making of industrial pictures; or an expert newsreel photographer; or an expert color cameraman? A limited number of cameramen, backed by years of experience, are available. Write stating your requirements and we shall be glad to assist you in choosing the kind of cameraman you want. INTERNATIONAL PHOTOGRAPHER, 1605 North Cahuenga Ave., Hollywood.

## MISCELLANEOUS

**COMPLETE COURSE IN FLYING**—If interested in aviation, see Roy Klaffki, 1605 North Cahuenga Ave., Hollywood.

**WANTED**—To know of the whereabouts of motion picture relics, documents, or equipment of a historical nature for Museum purposes. Write Earl Theisen, care of International Photographer, 1605 Cahuenga Ave., Hollywood.



In Sound Recording

## THE NEW PRINCIPLE MINOR QUARTZ OPTICAL UNIT

becomes an integral part of your sound recorder—this unit is cemented into a steel block—it focuses a beam of light of great intensity and actinic value a distance away and on the film, which PROVIDES CLEARANCE and PREVENTS SCRATCHING of the sound track. The width of the beam of light measures from .0005" to .0008" as it strikes the moving film.

Send for details and specimen of sound track.

**C. C. MINOR**

1835 Whitley Avenue

Phone: GR. 4781

Hollywood



## KODAK EXECUTIVES WIN PROMOTION

Herman C. Sievers joined the Eastman organization in 1902, after seven years of experience in the photographic material business. He served thereupon as manager of various of the Eastman photographic stockhouses in the Middle West, including 21 years as manager of the Chicago house. In 1925 he was placed in charge of all the company's retail subsidiaries in the United States and Canada. His headquarters were moved from Chicago to Rochester in 1929. He was elected general sales manager in 1932 and vice-president two years later.

Perley S. Wilcox entered the Eastman employ at Kodak Park in 1898 as a mechanical engineer, after graduation from Cornell. He rose to the position of assistant manager of the Kodak Park Works in 1906. He left Kodak Park in 1920 to organize and develop the Tennessee Eastman Corporation, of which he was made a director and general manager in that year. Mr. Wilcox has been in charge of the Tennessee subsidiary throughout the 15 years of its history, during which it has grown to be a business employing nearly 3500 persons. He was elected president of Tennessee Eastman in 1933, having been vice-president since 1921.

Marion B. Folsom came to Kodak in 1914 after graduation from the University of Georgia, in his home state, and after the two-year graduate course at the Harvard Business School. He has been with the company continuously since then except for two years in the army in the World War, during which he became a captain and served seven months in France.

Mr. Folsom organized and supervised the Eastman statistical department. He was assistant to the president when George Eastman was president. In addition he has been office manager for a number of years. He was elected assistant treasurer in 1930. He was identified with the development of the Kodak retirement-annuity and life-insurance plans and of the Rochester unemployment-benefit plan. Mr. Folsom is a director of the Lincoln-Alliance Bank and a trustee of the Rochester Savings Bank. He is a vice-president of the Rochester Chamber of Commerce and president of the Rochester Council of Social Agencies. He was appointed in November by President Roosevelt as a member of the Advisory Council on Economic Security.

Cornelius J. VanNiel was born and educated in The Netherlands. He joined Kodak in 1912 as a member of the Camera Works accounting staff. He spent a year in France in 1927 in connection with the acquisition of Kodak-Pathe as a subsidiary of the Eastman Kodak Company. In 1930 he was appointed assistant comptroller. In that capacity he was in charge of accounting at Kodak Park. Mr. VanNiel was appointed comptroller at the beginning of last year.

## S. M. P. E. CREATES HONOR MEDAL

The Society of Motion Picture Engineers has created an award known as the Progress Medal. It is to be presented this year to an individual in recognition of any outstanding invention, research or development, which in the opinion of the Progress Award Committee shall have resulted in a significant advance in the development of motion picture technology.

The Progress Award Committee has been appointed by the Board of Governors of the Society and is composed of Dr. A. N. Goldsmith, Chairman; M. C. Bat-sel, James Crabtree, Carl Dreher and W. B. Rayton. The Committee will meet on June 27 to select the recipient of the medal to be award at the Fall Convention of the Society.

The design of the medal has been submitted and ap-



proved by the Board of Governors and is the work of Alexander Murray of Rochester, New York.

## NEW "MUSICAL MOOD"

"Mediterranean Songs," a three-color Technicolor "Musical Mood," produced by Audio Productions, Inc., and released by First Division Exchanges, Inc., which was photographed in Naples, opened recently at the Rivoli, New York.



## CAMERA & PROP RENTALS

Camera Supply Co.  
1515 Cahuenga Blvd.  
Hollywood, Calif.

Ruddy Geraus, Manager  
Gladstone 2404

Nite Phone GLadstone 6583  
Cable Address — "CAMERAS"

## NOVEL LEICA EXHIBIT

E. Leitz, Inc., 60 East 10th Street, New York City, announces an unusually special and attractive display of the world's finest salon Leica prints. The actual photographs of outstanding Leica cameraists such as Dr. Paul Wolff and other European experts are a feature of the show. Supplementing the European pictures will be a number of examples of work by recognized workers in the United States such as Rudolf Hoffmann, Harold Harvey, Clarence Slifer, John Moss, Thomas McAvoy, Henry Lester, Ivan Dimitri, and others. There will be three hundred superb photographs in the collection, the first time such an impressive gathering has been made available at one time.

At the exhibit will also be shown the latest accessories for the Leica Camera. As we go to press, definite locations have not been made available, but dates for most of the cities in which the exhibit will be shown are herewith given: New York City, Tuesday, April 23 to Friday, April 26; Philadelphia, Tuesday, April 30 to Thursday, May 2; Washington, D. C., Monday, May 6 to Tuesday, May 7; Pittsburgh, Pa., Friday, May 10 to Saturday, May 11; Detroit, Mich., Wednesday, May 15 to Thursday, May 16; Chicago, Ill., Tuesday, May 21 to Saturday, May 25; Boston, Tuesday, June 4 to Thursday, June 6. All dates are inclusive.

Other cities in which this exhibit will be shown include: Buffalo, N. Y., Rochester, N. Y., and Boston, Mass. Dates for these cities will be made available at a later date. In the meantime, visit your local dealer for further details about this most unusual display of the proof of the practicability of the miniature camera and the superiority of the Leica.

## THE PASSING OF RUDOLPH SPETH

Rudolph Speth, treasurer of the Eastman Kodak Company, and an important figure in the growth of that business since he joined it in 1902, died of septicemia, February 22 in Rochester. His age was 64.

Mr. Speth was born in Bavaria and educated at the University of Wurzburg. He reached the United States in 1892 and spent in Chicago most of the ten years until he joined Kodak. He was an accountant with the firm of Price, Waterhouse & Company when he was engaged by George Eastman.

Mr. Speth played a substantial part in the expansion of the company that had just begun when he entered the Kodak organization. He was active in establishment of Kodak subsidiaries in foreign countries, in acquisition of retail establishments in the United States, and in organization of the factories for the manufacture of miscellaneous photographic products.

His foreign travels in the interests of the company took him to many parts of the world.

Mr. Speth became comptroller in 1919. He was elected treasurer in 1928 and a director in 1929. As treasurer, he succeeded to an office left unfilled when the late Mr. Eastman, founder of the company, resigned as president and treasurer in 1925 to become chairman of the board of directors.

He was a director of two Rochester banks, and president of the board of directors of the Hochstein School, a "settlement" music school for carrying high-class instruction to talented children who would otherwise lack a musical education.

During the war Mr. Speth was one of the outstanding figures in the Red Cross and Liberty Loan organizations in Rochester.

## TECHNICIANS BRANCH INCREASES

Increasing benefits to technicians of holding membership in the Technicians Branch of the Academy of Motion Picture Arts and Sciences has resulted in a total of 36 new members being enrolled in the Branch during the year 1934, and a total of 33 new members since the first of this year.

New members enrolled since the first of this year are as follows: Art Directors Section—Jan Domela, Ernst Fegte, Perry Ferguson, Stephen Gooson, W. A. Horning, Jack Otterson, Jerome Pycha, and David Townsend; Film Editors Section—George Boemler, Margaret Booth, R. J. Kern, William LeVanway, Harold J. McCord, Conrad Nervig, Blanche M. Sewell and Maurice E. Wright; Photographic Section—Harry Fishbeck, Alan Freedman, A. L. Gilks, Leigh M. Griffith, Ben F. Reynolds, Theodore Sparkuhl and John Swain; Sound Section—Edward L. Bernds, James K. Burbridge, S. C. Chapman, G. R. Groves, Robert B. Lee, R. A. Lindsay, Burton F. Miller, R. P. Miller, Richard E. Tyler and Samuel A. Waite.

FRANK C. ZUCKER

J. BURGI CONTNER

## MOTION PICTURE CAMERA SUPPLY, Inc.

NEW MITCHELL SOUND  
CAMERA NOW ON DISPLAY

We sell Simplex Portable 35mm Sound Projectors, Moviolas—also new and used Mitchell, B. & H., Akeley, DeBrie Cameras and Equipment.

We only sell  
equipment that  
we can guar-  
antee.

LARGEST STOCK OF NEW AND USED  
PROFESSIONAL EQUIPMENT IN THE EAST

Phone, write,  
wire or cable  
for quotations.

Eastern Representatives  
MITCHELL CAMERA CORPORATION  
HARRISON FILTERS  
FEARLESS PRODUCTS

723 SEVENTH AVENUE  
NEW YORK CITY

Telephone BRyant 9-7755

Cable Address: Cinecamera



# MAX FACTOR



The Old Maestro of the Make-Up World

Max Factor's latest discovery, Satin Smooth Liquid Foundation, is being acclaimed his greatest achievement.

From a cameraman's angle—as well as a performer's—this new make-up offers several new and distinctive advancements. According to Factor, it will not fade or change color under the blazing heat of either studio lights or sun. "We have made exhaustive tests in our laboratories, and in the studios, and have found the color remains unchanged."

Next to its color permanency is its color accuracy for, according to Factor, Satin Smooth Liquid Foundation comes in a modulated color range which easily captures the natural skin tones and the real personality of the player.

"Another advantage of this new make-up," stated Mr. artist is that Satin Smooth Liquid Foundation will not streak or run. Being a liquid grease paint, it is not water-soluble and therefore immune to perspiration.

And, speaking of blessings, perhaps one of the greatest single feature of this new make-up is its ease of application. Being thin, light and liquid, it spreads quickly and easily—requiring no tedious rubbing or blending. It is here, Mr. Factor points out, that the ideal photographic results will be effected.

"An ideal photographic subject," said Mr. Factor, "is one that is at ease and perfectly natural. When a player is wearing a heavy mask of grease paint, his entire facial expression is either lost or restricted."

"Another advantage of this new make-up," stated Mr. Factor, "is that so little has to be used, it naturally absorbs less powder. This means that the finished make-up will require little or no repowdering. Therefore, cameramen will find that the New Satin Smooth will reflect light and not absorb it. It will also tend to eliminate "cracking" which is nothing more or less than the caking of make-up which has been subjected to constant repowdering."

Max Factor is undoubtedly an artist who admits no limitations. As it will be remembered, he was the first to introduce grease paint in tubes—when it had been used in stick form for years. Then, realizing the limitations

of this advancement—knowing that motion picture make-up was too heavy and "mask-like"—he perfected Satin Smooth, a thinner make-up that was easier to apply and easier to remove.

And now, his third great contribution to make-up art—a liquid make-up for the face.

Factor has a long string of "firsts" to his credit. In 1920 he perfected the first make-up to give natural tones to the skin. This was created for Rudolph Valentino in "The Four Horsemen." In 1923 he created the first perspiration-proof liquid body make-up for Douglas Fairbanks in "The Thief of Bagdad." In 1926, he perfected the first make-up which could be photographed under water.

This was first used by Rex Ingram in "Mare Nostrum." Another first was scored by Factor when he presented Warner Brothers with a sunburn waterproof make-up for their "Noah's Ark" in 1929. In 1928, the Academy of Motion Picture Arts and Sciences honored him for the perfection of panchromatic make-up. In 1934 he was hailed for his research in make-up for three-color technicolor film.

Factor's new Satin Smooth Make-Up, which is guaranteed pure and non-toxic, is being introduced in containers as unique as the product. The powder comes in a sanitary glass jar with a new cap device, which releases powder through a perforated top which opens and closes at the user's will. The liquid foundation is issued in handy, conveniently-sized bottles.

## THE HOBBY ROUND UP

*(Sponsored by the Leisure League of America)*

Photography as an ideal leisure time pursuit will be dramatized in a series of displays at the Hobby Roundup, which will be held from May 1st to 11th inclusive in Commerce Hall, Port Authority Building, 8th Avenue and 15th Street, New York City, under the auspices of the Leisure League of America. The ten day exposition, which will show the nation at play, will be an attempt to revive the theme of olden times that "May Day is play day" and not a day for radical demonstrations, according to James S. Stanley, president of the League.

The exposition as a whole will reveal the leisure time possibilities of some fifteen major classifications of hobbies, including, in addition to photography—athletics, sports and physical culture; collections; community activities, including the drama and the dance; domestic arts and crafts; gardening; indoor games; lake, river and seashore activities; mechanical handicrafts; mountain and country activities; music; pets for pleasure and profit; reading and writing and travel.

Non-commercial exhibits in the photographic division will include those set up by the Camera Club, New York; the Miniature Camera Club, Brooklyn; the Amateur Cinema League, New York; and the Camera Club of the Brooklyn Institute of Arts and Sciences, of which Dr. Adolph Fassbender is the head. The Camera Club of New York, which is one of the advisory organizations of the Exposition, is planning an amateur photographic exhibition. Among those who will speak on photography during the show is William M. Strong, of Batten, Barton, Durstine and Osborn, Inc., author of "Photography for Fun," recently published by the Leisure League of America.

Inquiries concerning the photographic display should be addressed to Edward Delbyck, division manager in charge of photography of the Hobby Roundup, at 232 Madison Avenue, New York. The management of the show is under the direction of Roberts Everett Associates, at the same address.

Mitchell Camera Corporation  
Wishes to Congratulate  
Victor Milner on Winning the  
1934 Academy Award for  
Photography in the Production  
  
“Cleopatra”

●

VICTOR MILNER *Used*  
MITCHELL CAMERAS  
ON THIS PRODUCTION

●

MITCHELL CAMERA CORPORATION

665 N. ROBERTSON BOULEVARD  
WEST HOLLYWOOD, CALIF.

Cable Address “MITCAMCO”

Phone OXford 1051

FOREIGN AGENCIES

Claud C. Carter,  
Sydney, Australia

John H. Taylor,  
London, N. W. 1, England

D. Nagase & Co., Ltd.,  
Osaka, Japan

Bombay Radio Co., Ltd.,  
Bombay, India

Arminio Conti,  
Rome, Italy



# INTERNATIONAL PHOTOGRAPHER

HOLLYWOOD

FIFTEENTH YEAR

MAY, 1935

VOL. 7  
No. 4



—Still by John Herrmann

John Herrmann, director of cinematography of the (second) Byrd Expedition to the Antarctic, is seen here posing for his own photograph away down in Little America. Note the trusty old Akeley No. 241, which accompanied the Admiral on his first expedition.

5 CENTS  
A COPY

MOTION PICTURE ARTS AND CRAFTS

*Attention*  
**CAMERAMEN**

**SPEED**

DUPONT NEGATIVE  
IS STILL THE FASTEST  
NEGATIVE FILM ON  
THE MARKET . . .

WE INVITE COMPARATIVE TESTS  
UNDER ANY CONDITIONS

**DUPONT**

REG. U.S. PAT. OFF.

DU PONT FILM MANUFACTURING CORPORATION


35 WEST 45<sup>TH</sup> STREET  
NEW YORK CITY

PLANT . . . PARLIN, N. J.

SMITH & ALLER LTD.

6656 .. SANTA MONICA BLVD.

HOLLYWOOD, CAL.

THE  TRADE MARK HAS NEVER BEEN PLACED ON AN INFERIOR PRODUCT





Eastman Memorial, Rochester, New York

# INTERNATIONAL PHOTOGRAPHER

MOTION PICTURE ARTS AND CRAFTS

Vol. 7

HOLLYWOOD, CALIFORNIA, MAY, 1935

No. 4

SILAS EDGAR SNYDER, *Editor-in-Chief*

EARL THEISEN and CHARLES FELSTEAD, *Associate Editors*

LEWIS W. PHYSIOC, FRED WESTERBERG, *Technical Editors*

JOHN CORYDON HILL, *Art Editor*

HELEN BOYCE, *Business Manager*

A Monthly Publication Dedicated to the Advancement of Cinematography in All Its Branches; Professional and Amateur; Photography; Laboratory and Processing. Film Editing, Sound Recording, Projection, Pictorialists.

## CONTENTS

Front Cover Still by John Herrmann

FRONTISPIECE, Eastman Memorial, Rochester, N. Y.

ENCYCLOPEDIA OF CINEMATOGRAPHY - - - - - 3  
By the Editor

THE HOLLYWOOD CAMERAMAN IN THE LAND OF TEN  
BILLION FACES - - - - - 4  
By Silvio del Sarto

THE MAN BEHIND THE CAMERA - - - - - 6  
By Karl A. Barleben, Jr., F.R.P.S.

MOTION PICTURE SOUND RECORDING, CHAPTER XVIII 8  
By Charles Felstead, Associate Editor

HOW A MOTION PICTURE IS PUT TOGETHER - - - 10  
By Cecil DeMille

MINIATURE CAMERA PHOTOGRAPHY - - - - - 12  
By Augustus Wolfman

CAMERA AND PROJECTION TECHNIQUE OF CROSENE  
COLOR PROCESS - - - - - 14  
By Silvio del Sarto

THE NEW AKERS LIGHT TRIPOD - - - - - 15  
By Walter Bluemel

KODACHROME PROCESS - - - - - 16  
By Dr. C. E. Kenneth Nees

HOLLYWOOD CAMERA EXPOSITION - - - - - 20

THE MANUFACTURE OF ILLUMINATING CARBONS - - 28  
By W. C. Kalb

PHOTOGRAPH AND SOUND PATENTS - - - - - 29

CLASSIFIED ADVERTISING - - - - - 34

CINEMACARONI - - - - - 36  
By Robert Tobey

Entered as second class matter Sept. 30, 1930, at the Post Office at Los Angeles, California, under the act of March 3, 1879.

Copyright 1934 by Local 659, I. A. T. S. E. and M. P. M. O. of the United States and Canada

Office of publication, 1605 North Cahuenga Avenue, Hollywood, California  
Gladstone 3235

James J. Finn, 1 West 47th St., New York, Eastern Representative  
McGill's, 179 and 218 Elizabeth St., Melbourne, Australian and New Zealand agents  
Subscription Rates—United States and Canada, \$2 a year. Single copies, 25 cents.

This Magazine represents the entire personnel of photographers now engaged in professional production of motion pictures in the United States and Canada. Thus THE INTERNATIONAL PHOTOGRAPHER becomes the voice of the Entire Craft, covering a field that reaches from coast to coast across North America.

Printed in the U. S. A. at Hollywood, California



## PROSPECTS FOR JUNE

Lieut. Paul R. Harmer will begin his long expected series of three articles in July.

Royal Mulsby, a young writer with a constructive line of Hollywood comment all his own, will make his bow in June.

The story of the Society of Motion Picture Engineers' Annual Spring Convention will appear in our June issue.

Look for the yarn entitled, "An American Cameraman in American Studios," which will tell the fascinating story of miniature building.

The brilliant young gentlemen of the staff—Lieut. Theisen, Lieut. Felstead, Wolfman, Tobey, Westerberg, et al., will grace our pages with unusual contributions.

Lewis W. Physioc, Technical Editor, will tell his eager listeners a lot of interesting things about his new book—"Script to Screen," soon to be published. Everybody is looking forward to this fine work.

Karl Barleben, Jr., F.R.P.S., miniature camera expert, will give us "The Low Down on Press Photography." This delightful writer may be represented also by another useful and entertaining yarn in the same issue.

The attention of all cameramen, professional, 16 mm., amateur, miniature or otherwise, is called to Herbert C. McKay's fine article, "Making the Most of Exposure," which will appear in full in the June issue of INTERNATIONAL PHOTOGRAPHER and by special permission of The American Annual of Photography, 1935. It's a great story—a liberal education on the subject treated.





# The Encyclopedia of the Cinema

THE EDITOR

[This vast undertaking, which is meant to cover the enormous field of this new and vigorous manifestation of our modern civilization, was conceived some years ago by the International Educational Cinematographic Institute. Only the untiring enthusiasm and efforts of the Director of the Institute, Dr. L. De Feo, made the completion of this work possible.—EDITOR'S NOTE.]

Pioneer in this tremendous enterprise, Dr. De Feo was faced from the very beginning with the problems deriving from the novelty and originality of the work which had no precedent for the audacity of its conception. Started with the intention of producing a dictionary fixing an ever changing and ever richer nomenclature, and of giving to the world a synthetic description of motion picture apparatus and processes, the undertaking soon grew in importance as the screen was every day asserting itself as a wonderful and universal means of entertainment and of education.

This universality of Motion Picture soon lent to the work of compilation undertaken by the *International Institute* a character of internationality which constitutes one of the greatest assets of this *Encyclopedia*. For indeed the whole world answered our call to collaborate to this publication: Technicians, artists, lawyers, sociologists and experts in all fields, unanimous in recognizing the necessity of an *Encyclopedia* of this kind, sent their valuable contributions to a work which was rapidly assuming an outstanding importance. The *International Institute* received numerous articles from authorities and experts from all parts of the world, from the nearest as well as from the most remote sources, from countries where this call was not only a signal for an enthusiastic collaboration which manifested itself through very exceptional contributions, but also was an occasion for new initiatives opening additional possibilities in the vast field of Cinematography.

This is why the *Encyclopedia*, with its 8,000 items and 3,000 illustrations condensed in three big volumes of 1,000 pages each, will not only present accurate descriptions of the first as well as the very latest means cinematography has had at its disposal, but will also show in a vivid and authoritative way the colorful evolution of this prodigious discovery, from its pioneering period, rich in struggles, shortcomings and tragedies, to its victory over technical, material and spiritual difficulties, to its present power and hold on the masses, its boundless possibilities as the best universal medium for mutual understanding among the various peoples, and for the promotion of international goodwill.

This result has been attained through the intense work conducted for several years by specialists in the innumerable branches of science, industry and art motion picture embraces, and also the collaboration of experts who have during all that time bent their activity to the compilation and gathering of the material which has constituted the systematic basis for the redaction of the *Encyclopedia*. Thus an enormous amount of material for consultation has been selected, leading to the second phase of the work, that of proceeding to the division of this material into main articles and secondary or supplementary items, in view of giving to the *Encyclopedia* a structure correspond-

ing to the importance of the subject. This *Encyclopedia* being the first of its kind, also its structure was left entirely to the judgment of the authors, as absolutely no other publication could be taken as a pattern.

The harmonious repartition of the many subjects, with special view to their importance, their development, and their connections with various other fields, was a difficult work which was carefully conducted in order to give to the *Encyclopedia* the clarity and accuracy required by a publication of this kind.

Perhaps one of the most arduous tasks was the translation from the many languages into Italian of the numerous contributions which had reached the Institute from all parts of the world, bearing very often on highly technical subjects, drafted in the motion picture slang of the country where they had been written and full of a terminology created on the spur of the moment and requesting the establishment of corresponding appropriate terms in Italian.

Yet, it is through this very ungrateful work that the *International Institute* has been able to avail itself of the valuable collaboration of all the best and most authoritative specialists on the matter of motion pictures the world over, by giving an impartial welcome to the contributions of all kinds, with the result that the *Encyclopedia*, apart from its highly technical tenor, will offer a vivid description of the history of motion pictures, a history that belongs to almost every country, with its wonderful developments and possibilities, and will render a rightful homage to the worthy efforts of the pioneers of Cinematography and of all those who have more or less contributed to the evolution of this very important factor in our modern life, during these last decades.

It will also present motion picture not only as a mere industry, however important, but also as a manifestation bearing the stamp of a new era, marked with tremendous possibilities involving heavy responsibilities in the fields of education of the masses, instruction, propaganda for social welfare and international goodwill. Last of all, it will show motion picture invested with the sacred task of projecting before the eyes of future generations the first living archives of the history of mankind.

In one word, compared to other activities of the human mind tending to alleviate the difficulties of our life, motion picture, presented under its manifold aspects by the *Encyclopedia*, will appear as the ideal field where science, industry, art and philosophy meet in worthy efforts to bring knowledge and dispense recreation universally, thus heralding from one corner of the earth to the other its faith in understanding amongst nations and goodwill amongst men.





# A Hollywood Cameraman in the Land of a Billion Faces

**J**OHAN L. HERRMANN, chief cinematographer of the Byrd (Second) Antarctic Expedition and photographic representative of Paramount, at Little America, departed recently for Galveston, Texas, to visit his mother, after an absence of more than two years. Since his return to the United States Mr. Herrmann has been sojourning at Paramount Studios, Hollywood, where he was engaged in editing the film shot on the Byrd Expedition.

## Film

There was 135,000 feet of it exposed out of a total supply of 150,000, divided as follows: Eastman—Back-ground Panchromatic, Super Sensitive; Dupont—Infra D, Super Panchromatic.

Out of this footage of raw stock not a foot of that exposed was spoiled and those who have seen the film were enthusiastic in their praise of Mr. Herrmann's great work.

## Equipment

Mr. Herrmann schedules his photographic equipment as composed of the following units: Two 35 mm. Akeley; three 35 mm. De Vries; one Eyemo; one "Stereoscopic" (a French still camera); one Bell & Howell standard camera, motor drive; this latter used only three days, it having arrived at Little America on the ship that came to take the Expedition home.

The two Akeley had already made history with the first Byrd Expedition. They were No. 202, used by Joseph Rucker and No. 241, used by Willard Van der Veer, the two cinematographers of that expedition.

Akeley No. 241 was first used by Ray Fernstrom in the newsreels. Later it was overhauled for polo work and, in 1928 turned over to Mr. Van der Veer for the trip to Antarctica, while No. 202 enjoyed a like training for the unknown continent. Upon the return to the United States, in 1930, No. 241 was given to Mr. Herrmann who used it until 1933.

Both of these Akeley are due to go to the museums for their parts in the photographic history of the world.

No. 241, the camera habitually used by Mr. Herrmann, was with him at Kansas City, Missouri, when he was photographing the action of a battery of machine guns under demonstration by the police of that city. The guns were being fired point blank at the camera while Mr. Herrmann was cranking it and one of the bullets ricocheted from the barricade of iron and unbreakable glass and badly wounded his cranking arm.

## Newsreel Ace

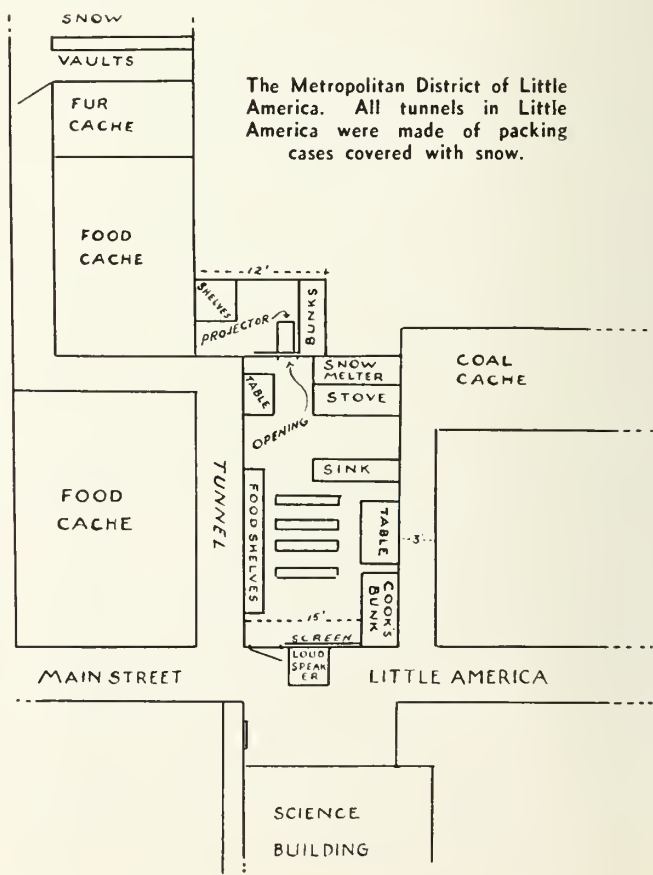
John Herrmann was an ace of the Paramount News-

reel forces on duty at Omaha, Nebraska, when he was drafted to accompany Admiral Byrd on his second expedition to the Antarctic.

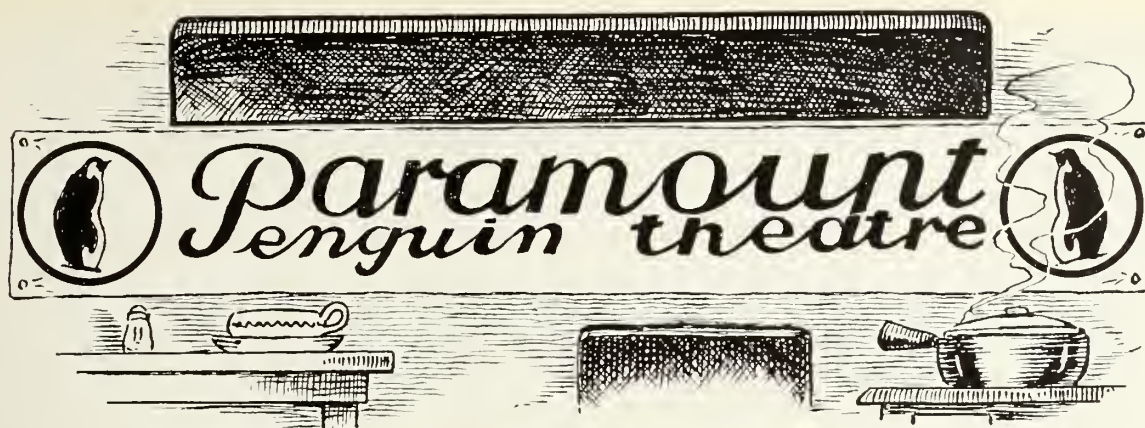
Mr. Herrmann did not take long to make up his mind and, after a busy season of preparation he was aboard when the first ship of the Admiral's expedition sailed from New Zealand and, with him, was another Paramount ace in the person of Carl O. Peterson, radio operator, whose job was to act as associate of Mr. Herrmann and to do the radio and aerial work on long flights.

## At Little America

Mr. Herrmann took possession of the shop and quarters left behind by Joe Rucker and Willard Van der Veer. Everything was in good shape and it didn't take long for Herrmann to get into the harness and that means also to get used to cold weather and methods of photography under the Antarctic Circle.







Inside of Projection Room, Little America.

The background shots taken at Little America and the surrounding terrain, when published, will give the reader a fair idea of what the chief cinematographer of such an expedition is up against.

#### Boreal Desolation

It is a chaos of Boreal desolation—the Land of the Giant Faces—a treacherous terrain with mountains of broken ice everywhere and terrible crevasses waiting like the maws of some fearsome ogres to swallow men or whole dog trains, or even great trucks and tractors.

Mr. Herrmann had a personal experience of that kind one day when he tumbled into a blind crevasse and was saved a 12-foot fall only by a ski which caught in the ice and formed a bridge across the gaping gash which enabled the startled cameraman to scramble back to safety.

#### Little America City

The accompanying plan, drawn by our artist, John Corydon Hill, with Mr. Herrmann's coaching, will give the reader an excellent idea of the "Metropolitan District" of Little America. Consider it carefully, for it helps to grasp the situation that had to be dealt with cinematographically down there.

The life and entertainment center of Little America was the Paramount Penguin Motion Picture Theatre, where twice every week the members of the Byrd Expedition attended performances without regard to box office receipts.

As the plan sets forth, the Paramount Penguin Theatre is just the Mess Hall temporarily turned into a theatre with sound and everything. On show nights, according to plans made by Mr. Herrmann, the dining

tables were stacked against the wall and the benches were turned around to enable the spectators to face the screen, and then Herrmann and Peterson did their stuff.

#### Up to Date Theatre

Western Electric portable sound projection equipment had been installed and there was plenty of music for those who liked it.

The Paramount Penguin Theatre—from February, '34, to August 22, '34 (when the sun came back), was a first run theatre, showing 97 feature performances; after that it was a second run house.

One feature outstanding at these entertainments was the advent of the Supply Officer who never failed to be there at the door with an endless menu of confections of all kinds—something to please every patron of the big show—chocolate, nuts, candy bars, bon bons, crystallized fruit—no end.

#### The Programs

The programs were made up of film from the eight major studios and it was the best the studios had—no phoney stuff at all. (And here the writer must digress long enough to ask Fred Waring, of Waring's Pennsylvanians, on behalf of the bewhiskered young men who attended Paramount Penguin Theatre, the identity of that girl (the dancer) who was the overwhelming favorite of them all. According to Mr. Herrmann the vote was unanimous.) Other favorites were Mae West, George Raft, Gary Cooper, Claudette Colbert, Helen Hayes, "but the boys Missed Sally Rand," said Mr. Herrmann.

Twelve hours before a picture show Chief Herrmann  
(Turn to Page 22)



Chief John Herrmann with his dog-team on duty in Little America.



## Piffling Questions

# The Man Behind the Camera

## What Is An Amateur?

By KARL A. BARLEBEN, JR., F.R.P.S.

**P**HOTOGRAPHY recruits many types of amateurs to its ranks. By far the vast majority are intellectual hobby-riders, often scaling the heights of the most difficult phases of their chosen hobbies. And incidentally, let it be understood from the start that the word "amateur" is not derogatory in the least, in spite of the fact that it is often used to convey this impression. Refer to your dictionary and you will find that the amateur is one who partakes of photography—or anything else, for that matter—for the personal satisfaction and gratification it offers. The professional, on the other hand is one who practices it for remuneration. This is the essence of the meaning. All too many people confuse these terms. To call a person an amateur may be complimenting him, whereas many use it to indicate a person not skilled in photography. Frequently we come across amateurs who far excel in their work, that produced by professionals—the exhibits and salons give mute testimony to this fact. The bulk of prize-winning photographs come from the cameras of amateurs. So let us not have any more confusion on these two words.

There is, on the other hand, a small percentage of workers who are difficult to get along with. After having served for six years as instructor of motion picture photography at the New York Institute of Photography, and more than two years handling correspondence for E. Leitz, Inc., I have come to a few definite conclusions which I feel prompted to put down on paper for the benefit of others who may be in a similar position as I, and also for those who haunt our waking moments—unwittingly, of course.

Let us start out by acknowledging the fact that photographs are made by means of a certain process with which we are all more or less familiar. Let us further concede that photography is partaken of as a hobby by the amateur—he likes to make pictures by means of a camera. This, then, is the ultimate goal of photography, as far as the amateur photographer is concerned. Let us also admit, while we are at it, that it requires a certain amount of technical skill and knowledge in order to turn out satisfactory photographs. This includes a general knowledge of the camera, emulsions, exposures, lenses, shutters, developers, enlargers, enlarging papers, etc. If a sufficient knowledge to turn out satisfactory pictures has been obtained, why delve deeper into technicalities?—not that such studies are not well worth while, but as will be brought to light a little further along, many amateurs defeat the very purpose by being too inquisitive.

I have several times been criticized for writing in too elementary a fashion. I am told that I should write technical matter, deep stuff for the advanced amateur and worker. I admit the truth of all this—but only up to a certain point. My feelings in the matter are that it is the beginner, the person just starting out with a newly acquired camera, who needs help. The advanced worker does not need my advice in print, for he knows where to refer for information such as he seeks. By mail, I reply to many technical questions. In my magazine writing, however, I prefer to write for the beginner, for he is indeed in a tough spot, with a brand new camera in his possession, and without the slightest idea as to what to do with it. Often he picks up a photographic magazine in desperation—and when he does, I like to feel that I have helped him a bit. I don't want to frighten him away from his new hobby, for by so doing, I am sure to lose one more individual who is sure to add to the thousands of enthusiasts now in existence. We need more amateurs. We want people to know and understand the delights of photography. Why scare them off with technicalities? I defend myself, therefore, with this explanation.

I have dabbled in photography for twenty years. I feel capable of answering any reasonable technical question which might arise, but I also know how easy it is to become hopelessly involved, and I cannot see the point in "showing off" to beginners who, like as not, will consider photography too much for them if too much is revealed. I have been in this thing "up to my ears," both in movies and still work. I have concluded, after careful thought, that a good deal of technical aspects of photography as are now expounded by the experts is quite unnecessary for the most part.

I recently discussed this matter at the dinner table one evening with Mr. N. F. Oakley, of the DuPont Film Manufacturing Corporation, and he expressed his discomfort at the thoughtless and needless questions which his firm receives by the hundreds. He pointed out that sources for technical information such as the *Journal of the Society of Motion Picture Engineers* are properly the places for technical matters which are really for the active technicians, and not the photographic magazines. In short, I am supported in my views by one of the officials of one of the largest manufacturing concerns which makes sensitive materials for photographic use.

We come to a dividing point. Does the amateur want to make pictures, or does he want to go into photographic research? After all, the picture is the thing. If it can be made by following a few simple rules, why make it in a round-a-bout and difficult manner? Why must we be burdened with technicalities? During the past few years, an army of miniature camera technicians (I can think of no better name for them) has sprung up. These chaps talk and think in terms of awe-inspiring words and phrases. They take more care in their work than a surgeon performing an appendectomy. Not that this is wrong—don't misunderstand—I agree and insist that a certain amount of care and knowledge is required, but I object to the thing being carried too far. The pay-off comes when these technicians are asked to show some of their pictures. Rarely are they able to show you a single picture which is satisfactory. There must be something wrong with this system. If a person studies diligently and investigates the whys and wherefores, it would seem reasonable that there would be some results to be seen—but no, such doesn't seem to be the case.

I know several intense photographic adherents. They own many hundreds of dollars' worth of equipment. They continually ask questions which would try the patience of Job—to say nothing of the research laboratories of Eastman Kodak Company and others. They will explain in detail their latest discoveries, and wonder why the photographic world doesn't take up their investigations. I am a patient man, but there is also a limit; so I usually ask to see some of their results, after which I see and hear no more from them. Funny?

I do not object to technical questions. On the contrary, I welcome them, for it indicates that the individual is interested in advancing himself. What I do object to, are questions which serve no practical purpose, questions which indicate that the questioner is trying to be a "smart Alec," who has heard something, somewhere and wants to show off his vast knowledge. It would appear that there are a good many workers of this type. The sad part of it all is that these contaminate, so to speak, the minds of the enthusiastic beginners, with a result that often the latter lose heart and either put their cameras on the shelf for good or sell them at once with the idea of never making another picture as long as they live. And who can blame them? Photography, instead of being an enjoyable pastime is, in the words of the smart Alects, a serious business fraught with difficulties and bristling with high-sounding technical words and phrases.

Granting that photography is a technical subject, why not make the path of the beginner easy and smooth? Why not point out to him that good pictures can be made with the fundamentals? It goes without saying that the beginner who is started on the road towards good photography will in due time reach the point of going deeper and deeper into the many mysteries of photography. As he progresses, his interest will increase, and photography will be a real joy to him for the remainder of his life. He will learn where to get the more technical information he seeks, and if he is wise, he will know where to draw the line.

To come to a few concrete examples of matters which concern the photographer not at all, let us for a moment dwell

CINEX TESTING MACHINES

CINEX POLISHING MACHINES

**BARSAM-TOLLAR MECHANICAL WKS.**

7239 Santa Monica Blvd.

Phone GRanite 9707

Hollywood, California





Left—Tit for tat—Karl A. Barleben, Jr., and George V. Moran, both of the E. Leitz Organization, shoot each other—photographically, of course. Seems that Barleben's camera is a bit larger than Moran's, and no wonder. It's a giant, three foot advertising display dummy which recently arrived in America.—Leicaphoto by Richard E. Stichler. Center—What's this—the Model X Leica? No. Karl A. Barleben, Jr., goes in for the bigger things in photography and examines a giant dummy display Leica three feet long on its arrival in the United States. This dummy—the camera, of course—is used for show window advertising. Have you seen it in your local dealer's window yet?—Leicaphoto by Richard E. Stichler. Upper Right—When candid photographers get together—you can't keep these boys from shooting everything in sight, including each other. f:2, 1/20th second, DuPont Superior film, feeble indirect lighting.—Leicaphoto by Dr. Wm. P. Eckes. Lower Right—The man behind the camera—a mirror picture made with the aid of one Photoflood lamp. DuPont Superior film, 1/20th second exposure at f:2.—Leicaphoto by Karl A. Barleben, Jr.

on some which I have come across. One of the most frequent questions has to do with lenses. It is a fine thing for the photographer to realize that his lenses are made of more than just a piece of glass. He should know what focal length is, he should be familiar with his diaphragm stops, and all other relevant matters. But so often I am asked about the construction of the lens, the curvature of the various elements, the amount of absorption, refractive indices, the exact color correction, the composition and formulas of the glass of the various elements, and many other similar questions. To a limited few workers who have special activities in mind, I can see where such questions, if intelligently put, can be of value, but when the average amateur asks such questions out of idle curiosity, I believe it is time to put a stop to it for several reasons, the most important of which is that such information does not in the least assist him in securing better pictures. Secondly, manufacturers are all agreed that optical information of a technical nature is not to be divulged to the amateur. To begin with, each make and type of lens is built from a different formula and each is made somewhat differently. The relative merits of each may be of some value to the man who is undecided as to which one he needs for his particular work, but even then, questions such as have been just mentioned briefly have no part in such information. Thirdly; lens formulas are patented. It is, frankly, no one's business how a lens is made, or why, or what. The main question is: Does the lens produce the image as the customer wants it? If the answer is yes, that is all he need concern himself with. All lenses today, as offered by reputable manufacturers, are in every way most satisfactory. The beginner need not worry about his optical equipment if it has a well-known trade-mark.

There are lenses, however, which produce slightly soft images. Others, in fact most, produce clean-cut, wire-sharpness. It sometimes happens that an amateur wants a sharp-cutting lens but buys a camera equipped with a slightly soft lens. Not understanding his lens as he should, he complains. Had he an understanding of the lens before he made his purchase, his troubles would never have arisen in the first place. He who wants a sharp lens and gets a soft one, makes the loudest complaint. He also, like as not, starts on an energetic "knocking" campaign, telling his friends that such and such a lens is no good. Rumors spread, and soon that particular lens has a bad reputation. Now it so happens that some photographers need a soft lens in their work, for example, portraitists. These soft lenses are made for them, and naturally, when a man who wants a sharp lens gets a soft one, he feels wronged. Yet it is all a part of using the proper kind of lens.

To illustrate this point, I might mention the Hektor 50mm. f:2.5 lens for the Leica camera. Here is an ideal lens when used for purposes for which it was designed. This lens has had adverse criticism hurled at it during the past few years, although previously it was accepted as a most admirable objective. The true story of the Hektor is that it is slightly soft at wide aperture. When stopped down to f:6.3 or more, however, its sharpness is faultless. When the Summar 50mm. f:2 lens was introduced, the Hektor fell into disfavor because the former boasted of crisp sharpness at all apertures. Nevertheless,

before the Summar made its appearance, the Hektor was accepted as a perfect, moderate-speed lens. The Hektor is still a fine lens, especially for those who understand its characteristics and make full use of them. The very slight softness resulting from using it wide open pleases portraitists and pictorialists alike. If crisp sharpness is wanted, it need only be stopped down to f:6.3 or more. But because the Summar and newer designed lenses offer a complete sharpness at all apertures, the Hektor has lost a good deal of favor which it once had. This is a typical example of how popularity can change overnight. Workers attempt to compare the Hektor and Summar, never considering, apparently, that there is a considerable difference in their prices. This is an angle of psychology which is most interesting to study. The public jumps to conclusions without first working out the reason, cause, and effect. The manufacturer, as usual, "gets it in the neck."

Technical details about lenses are of no importance, as has been previously mentioned. True, one man made an exhaustive test of representative lenses and published his results in an annual of photography a little over a year ago. His article was illustrated with graphs and charts. Great interest was shown in this work, and ever since manufacturers have been bombarded with questions about their respective lenses. I question the advisability of publishing such material in a generally-read magazine or annual, for it has a decidedly disturbing influence upon the average amateur. He becomes confused and like as not disappointed when he sees how variable lenses really are. When he learns that his particular lens is sharper at one aperture than another he is about to give up, because he didn't know this before. There is an important psychology in all this, and without the amateur having such evidence presented to him, he is supremely happy with his camera. When he sees, however, that his lens has certain characteristics which are not ideal in every respect, he becomes disgruntled. Before he knew this, he was happy with his equipment. Such technical information is really for the opticians and not for amateur photographers. Whether a lens is applicable to certain uses or not is something very definitely within the limits of the amateur, and he should know from the start on authoritative information just what sort of lens he should buy. The rest he can safely leave to the opticians who design and make them.

Another question, which might be considered even more serious, concerns itself with emulsions and developing formulas. Here indeed we come into something serious. For example, now and then I receive a letter asking what the resolving power of the photographic emulsion is! To begin with, no particular emulsion, make or type, is indicated. How can anyone answer such a question? Another asks as to what is the best developing formula. No emulsion is indicated. Now speaking in terms of technique, it is well-known that the best results are obtained by matching the developer to the particular emulsion concerned. The developing time is worked out to conform to a definite gamma, and this, in turn, depends upon the type of subject in the picture and the kind of results expected. Off-hand, we might say that there is no "best" of anything. As for developing formulas, the question must be qualified. Is fine

(Turn to Page 24)

# Motion Picture Sound Recording

## THE MICROPHONE

### Chapter XVIII.



HE time has come in this series of chapters on sound recording to revert to that important instrument which serves as the ears of the sound recording system—the microphone. Because of its importance in this field and in the other fields served by the communication engineer, it will be given rather thorough consideration in the several following chapters.

The sound pick-up device that functions to transform energy from acoustical to electrical form, is one of the most delicate instruments in any electrical system that amplifies, transmits, or records sound. The devices now available for this purpose are not extremely efficient in operation, nor is their fidelity of transformation entirely uniform at all audible frequencies. It is desirable for the engineer in the field of sound recording to have a sound pick-up device that will produce an electric current having practically the same wave form as, and amplitudes proportionate to, the sound-pressure waves that are to be amplified and supplied to the apparatus that will record the effect of these waves.

The more nearly perfect the electrical copy of the sound wave, the better will be the quality of the recorded and reproduced sound. Because of their great importance to the communication engineer, the several types of sound pick-up devices used most widely in sound recording will be discussed rather exhaustively in the next several chapters.

#### *The Types of Microphones*

There are two forms of this pick-up device, which is known as a *microphone*, or *transmitter*, that are most widely used at the present time. The original type of microphone, the *solid-back carbon transmitter*, is of the carbon granule type; while the microphone that has superseded the carbon transmitter for all sound recording and reproducing work is called the *condenser microphone*, due to its peculiar construction. The carbon microphone can be subdivided into those types having single and those having double cells of carbon granules, and known as *single-button* and *double-button transmitters*.

The transmitters used in telephones, and in other places where a microphone having high fidelity in the transformation of energy from acoustical to electrical form is not needed, are of the single-button carbon granule type; while the double-button carbon transmitter is still employed as the pick-up device in some radio broadcast stations, in public address systems, and in conjunction with other equipment that requires a reasonably high-quality microphone of moderate cost. The condenser microphone, however, chiefly because of the fact that it has less inherent "ground" noise, has lately been coming into extensive use in place of the two-button carbon microphone in radio broadcast stations; and it is now used almost exclusively as the pick-up device in sound motion picture recording installations.

#### *The Simple Carbon Microphone*

The single-button, or single-cell, carbon transmitter

was the first form of microphone to be employed for commercial purposes; and as it is still used in all telephones and inter-communicating telephone systems in the sound recording studios, it will be well to describe it briefly before going on to a discussion of the other types of microphones.

This simple transmitter consists of an elastic metal diaphragm mounted on a rubber ring that is held tightly against the frame of the transmitter. A carbon block is attached to the center of the diaphragm; and directly opposite it another similar carbon block is fastened to the frame. A band-shaped mica washer is wrapped around these two blocks, and the chamber thus formed between the blocks is filled with many small, polished carbon granules. This construction will be evident from an examination of Figure 1.

The carbon blocks form the two terminals of the transmitter; and a battery or other source of direct current is connected in series with the microphone and the outgoing circuit. For most types of work, the microphone and battery are connected in series with the primary of a *microphone transformer*, as may be seen in the illustration.

When the alternate rarefactions and compressions of the air that constitute a sound wave encounter the flexible diaphragm of the transmitter, they cause it alternately to be sucked forward by a low pressure area in front of it and then forced backward by the following compression of the air. This vibration of the diaphragm in tune to the frequency of the sound wave varies the physical pressure on the packed carbon granules. The resistance of the transmitter changes accordingly—the greater the pressure on the carbon granules, the lower being the resistance between the carbon blocks—and so the amount of current flowing in the circuit in which the microphone and battery are connected is varied. This current variation is in inverse ratio to the resistance of the circuit.

As has been said, this single-button carbon transmitter is of the low-quality type, and therefore the current variation that is created in it by a sound-pressure wave striking the diaphragm is not a faithful copy of the sound wave.

It is plainly evident that too great a movement of the diaphragm in this type of microphone will cause a non-linear resistance variation. That is, if the to-and-fro movement of the diaphragm is of greater amplitude than

Phone CLadstone 4151

#### **HOLLYWOOD STATE BANK**

The only Bank in the Industrial District of Hollywood  
under State Supervision

Santa Monica Boulevard at Highland Avenue



a certain permissible maximal value, which is given by Morecroft as 0.0001 inch for an ordinary carbon microphone, the current in the microphone circuit will be an even less faithful copy of the sound-pressure waves producing the vibration of the diaphragm than is normally the case, as both odd and even harmonics will be present in the electric wave thus created.

The single-button microphone usually employs a mouthpiece; and its sensitivity is high although its fidelity of reproduction is poor. It is still used in wire telephony because it operates efficiently in transforming to reasonably faithful speech current just enough of the speech frequency band to make possible intelligible conversation between persons. The construction and functioning of this type of microphone are so simple that it will not be necessary to consider them in more detail.

#### *The High-Quality Carbon Microphone*

The double-button carbon transmitter is of the stretched-diaphragm, carbon-granular type; and because of its construction, it is often termed the "push-pull" transmitter. The sensitiveness of this type of microphone is extremely low—about one-100th that of the single-button transmitter—but the quality of its output is high, comparing favorably with that of the condenser transmitter.

The double-cell carbon microphone is less bulky and less troublesome than the condenser microphone, and it requires a smaller amount of amplification to bring the speech current up to a useful value; but the carbon hiss that is inherent in this type of transmitter somewhat limits its use. The presence of the carbon hiss brings the ground noise in the circuit up to such a high level as to cause it to interfere with the quality of the speech. Sometimes a filter is used with the two-button microphone to reduce the amount of this hiss. The filter is formed of series resistances in each of the three leads from the buttons and small condensers shunted across the buttons.

The two-button microphone is widely used in public address systems, where its many advantages for this type of work outweigh the annoying effect of the carbon hiss. Up to the time of the development of the condenser transmitter to its present high standard of excellence, double-button carbon microphones were used exclusively in radio broadcast stations; but, as has been mentioned, they have been replaced almost entirely by condenser

By  
**CHARLES  
FELSTEAD**

Associate  
Editor



microphones. In the motion picture sound recording installation, this type of microphone is still used with the small public address system that permits the monitor man to address the actors on the stage; but it is never used for recording.

#### *Construction of the Double-Button Microphone*

The double-button transmitter is flat and circular and approximately the size of a doughnut (about one inch by three inches). To overcome the effect of resonance and the resultant distortion in output that would be introduced by a mouthpiece or other form of collecting horn, this microphone is used without such an attachment. It is quite sensitive to mechanical shock, and so a simple form of spring suspension is used to insulate it from vibrations and jars.

Quite often the whole assembly is enclosed by two metal covers that have several large circular holes cut in them. These openings are covered by a fine-mesh metal screen that serves to protect the delicate diaphragm from injury by pencils, the ends of wires, or other objects. The microphone in its frame may be fitted with a base and used on a desk; or the high stand type of mounting may be employed when the microphone is to be used by a speaker who is standing.

The stretched-diaphragm of this type of transmitter is made of a metal called duralumin, and it has a thickness of 0.0017 inch. A spacing washer on mil (0.001  
(Continued on Page 32)

## ROY DAVIDGE FILM LABORATORIES

...  
An Exclusive "Daily" Laboratory  
...

Quality and Service

6701-6715 SANTA MONICA BOULEVARD  
GRanite 3108

# How a Motion Picture Is Put Together

By CECIL B. DeMILLE



Left—When centuries meet—The 12th and 20th centuries mingle freely at Paramount Studios where Cecil B. DeMille, on camera boom, and his assistants direct hundreds of knights and peasants in scenes for "The Crusades." Center—King Richard the Lion Hearted meets Saladin, the Sultan of the Turks. Right—New DeMille leading lady—After years in motion pictures, Loretta Young becomes a Cecil B. DeMille star in his current Paramount production: "The Crusades." Here she is with Anna Demetrio receiving instructions from the director. Henry Wilcoxon, who plays the leading male role of King Richard the Lion Hearted, takes it all in on a day off.

**F**ROM the moment an idea for a film has been conceived and until the time when it is shown on the screen a very complicated mechanism is put in motion.

No one man in the industry knows all there is to know about it, and no one man has ever been able to make a picture all by himself. Any statement to the contrary can be taken with a generous grain of salt.

One man may be a controlling or co-ordinating factor in the huge organism which creates a picture. He may, however, never hope to attain omniscience and omnipotence in motion pictures, for it embraces every branch of learning.

Roughly, a motion picture goes through three stages:

1. Assembling of material.
2. Mounting of material into picture form.
3. Polishing and finishing.

Each one of these divisions is just as important as the other, and each has its group of technicians. The failure or weakness of even one little cog in the machinery is enough to throw the whole thing out of gear. That is why we have good, bad and indifferent pictures.

Taking my latest Paramount production, "Crusades," as an example, we shall see just what had to go into it to make it entertaining and convincing.

The first stage, in the case of this picture, occupied the greatest length of time. Being an historical subject, the most minute research was necessary on every detail concerned. Every authority on the life during the times of the Crusades was squeezed dry of all his information.

The scenarists concentrated on story and incident, putting them all together, contradictions and all, and whittling the whole thing down until a script, accurate both in historical detail and alive with dramatic value, finally emerged.

Costume designers concerned themselves with the clothing and jewelry of ancient times, copying designs

from books and manuscripts and adapting them to the characters in the picture.

Set designers made a thorough study of the architecture and interior decoration of that period, making hundreds of sketches of prospective sets. Hairdressers and make-up artists turned their talents to making each wisp of hair and each eyelash reflect the customs of that age.

Under the direction of the heads of each of these departments, artisans were set to work to put up buildings, furnish rooms, construct chariots, armor, wigs, sandals, costumes and everything else that came under the head of setting.

Casting of characters was just as painstaking a job. They had not only to be good performers, but had to have all of the Berengaria characteristics of the historical personages. Finding a Berengaria, Queen of England, and Saladin in Hollywood was a man-sized job, as things turned out. Henry Wilcoxon, who plays King Richard, the Lion Hearted, who had been brought from England, was the logical one cast for this part.

When every bit of detail had been assembled, sets and props built and costumes made, we were ready to enter on the second stage. Actual production consists of fitting together the contributions of every one of the technicians,

**35mm. Eastman or Dupont**

Fresh Gray Backed Negative

Price 2½¢ per Foot

for

AMATEURS or PROFESSIONALS

**KINEMA KRAFTS COMPANY**

6510 Selma Ave. Hollywood, Calif. GLadstone 0276



adding to it, among other things, the departments of acting, photography, sound recording and lighting. The director has the job of general, seeing to it that everything fits into the pattern.

A slip in any detail on a scene might result in that scene being laughed off the screen. A wrong bit of costuming, an anachronism in props or set, the wrong interpretation of a line of dialogue, a bad piece of photography or lighting or sound recording—any one of these is enough to set at naught the efforts of the other technicians who made the filming of the scene possible.

The two months of filming is just a culmination of the eight or nine months which were spent on research and preparation. It is a matter of putting to practice everything we had worked out in theory—of translating into flesh and blood, wood, metal, cloth and stone the ideas contributed by each technical head.

When everything has been photographed and the individual scenes picked from the daily "rushes," the process of assembling, editing and polishing the film begins.

With every scene placed in sequence in the first rough cut, the picture is still a half-baked affair. Some of the scenes have no sound track. There is far too much footage, necessitating the removal of some scenes. Musical background has to be supplied for certain spots. Special effects have to be put in.

All of this is a matter not only of a few weeks. The film has to be run over and over again for various pur-

poses. Sound track has to be fitted to scenes shot silent, musical sound track scored to others. Scenes and portions of scenes are trimmed out through a slow process until the dramatic value of the picture is closely bound.

When the film is practically in readiness for exhibition, it is tried out on an audience in a preview generally held in a neighborhood or small town theater. This is just as important a part of the process as any, and here the audience is called on to contribute its share to the making of the film.

Their reactions to every scene and every movement in the picture is carefully noted. Their laughter or silence or gasps are the barometers by which we measure the finished product. After this first preview, a final trimming is given the film according to the unspoken dictates of the audience. Then, and only then, do we feel that it is ready for release.

It is the ultimate audience which tells us whether we have done our work well or not—and they tell it in terms of dollars and cents at the box office.

## FRED WESTERBERG'S GREAT LITTLE BOOK

The Cinematographer's Book of Tables  
is on sale throughout the world.  
At any dealer—\$1.00.

## THE REGENERATION OF THE HULA

Robert Miller, for 17 trips chief cinematographer of the famous Dollar Line, departed for Honolulu on April first to spend several weeks shooting atmosphere for a history of the Hula Hula dance.

Mr. Miller shipped on the big Matson Liner, Malolo, leaving Mrs. Miller to follow him after school is out in June.

He will be associated in Hawaii with Robert L. Lukens, of the Hawaiian Electric Company, purveyors of light and power to the city of Honolulu and its environs.

The Hula Hula dance, in its pristine glory, was both a ceremonial and an entertainment and Mr. Miller and his associate are interested not only in restoring it to the original splendor, honor and fame, but in disseminating it throughout the world by means of teaching through the medium of the mail order.

Mr. Miller has made many trips to the Orient and the South Seas, but this present sojourn in the Paradise of the Pacific looks like a protracted visit.



**"SOUNDOLA"**

For Editing, and Inspecting Sound Track Only—  
Positive or Negative

**WILL NOT SCRATCH NEGATIVE**

Does Not Heat—Operates From Any Lamp Socket

Price Amplifier and Sound Head,  
**\$150**

**Hollywood**  
**MOTION PICTURE EQUIPMENT CO. LTD.**

645 NORTH MARTEL AVE. CABLE ADDRESS ARTREEVES  
HOLLYWOOD, CALIFORNIA, U.S.A.

## Candid Portraiture

## Miniature Camera Photography

## A Letter From Australia

*Metol and Paraphenylene-Diamine Formulas:* Last month we mentioned the tendency of workers to incorporate metol in their paraphenylene-diamine formulas to obtain better gradations in their negatives, and now we are presenting two formulas recommended by Mr. E. W. Lowe, of the Edwal Laboratories. Past experience with formulas suggested by Edwal would indicate that the following should be of great help to the miniature camera photographer. The trend lately is to employ formulas which will not only satisfy fine grain requirements, but will produce a negative of proper contrast and gradations as well. Mr. Lowe's formulas are as follows:

Diamine-H (Paraphenylene-diamine Hydrochloride) .....	12 grams
Glycin .....	6 grams
Metol .....	5 grams
Sodium sulphite .....	90 grams
Trisodium Phosphate Monohydrate.....	24 grams
Water .....	1 liter

This formula will give a grain almost as fine as the Sease No. 3 Formula, and can be used on normally exposed negatives. The gradations and contrast obtainable are excellent.

Diamine-P (Paraphenylene-diamine).....	10 grams
Glycin .....	5 grams
Metol .....	6 grams
Sodium Sulphite .....	90 grams
Water .....	1 liter

Development time for both formulas: 15 minutes at 70°F., 18 minutes at 65°F., for all emulsions except the fine-grain type as Panatomic, Micropan, etc. For the latter films the developing times are 10 minutes at 70°F., and 12 minutes at 65°F.

In regard to the latter formula, Mr. Lowe states: "This latter formula is excellent for normal exposure and indeed may be used when the exposure has been much less than normal. Some of our tests of it on under-exposed negatives have given remarkably good results. Negatives developed in it will give fifteen diameter grainless enlargements unless over-exposed. If the solution is

allowed to age for two months after being made up the grain produced is as fine as that given by the Sease No. 3 Formula. In addition, the tone scale is very long and the gradations are excellent."

Here is some further interesting matter mentioned by Mr. Lowe in his letter to us: "With your permission we will here insert a few remarks which have been occasioned by inquiries from various of our customers. Paraphenylene-diamine Hydrochloride, or as we call it, Diamine-H, is in no way interchangeable with Paraphenylene-diamine, or Diamine-P, and neither chemical should be used in formulas designed for the other. Diamine-H contains only about sixty per cent as much Paraphenylene-diamine as Diamine-P, and unless allowance for that fact is made, solutions containing it will not retain their developing powers as long as those containing Diamine-P. When formulas for the use of Diamine-H are made up, considerable care should be used to weigh exactly the specified quantities of Diamine-H and Trisodium Phosphate Monohydrate, since a small excess, or the Trisodium Phosphate, will give a very considerable in grain size, and on the other hand an excess of Diamine-H will cause flat under-developed negatives."

*Candid Portraiture:* To mention candid photography in relation to the miniature camera is nothing new, for the small camera is ideally suited for such work. Many amateurs are, however, neglecting its value for portraiture. In working with a large camera the subject must necessarily be "posed," for every time the sitter moves out of position it is necessary to correct the focus via the ground glass. Then again, when the actual exposure is taken the sitter must remain posed for the duration of the exposure, which is relatively long, because of the slower lenses on larger cameras.

With the miniature camera, the lamps can be properly arranged, the subject instructed in the position which to take, and a snapshot taken every time the subject assumes a suitable pose. Nor are many lamps needed to enable



Left—Child Portrait. Photographed by A. Wolfman. Taken with a Leica Camera, and Perutz Peromnia film. Exposure made by daylight. Center—Candid photograph taken in subway train, using only the illumination furnished by the train.—Photograph by Kip Ross. Right—Child Portrait. Photographed by A. Wolfman. Shots of this type are extremely simple with the miniature camera.



snapshots to be taken. With the camera loaded with supersensitive film, and two Photoflood lamps in reflectors at about four feet from the subject, normally exposed negatives can be made at 1/30 second at f:3.5. If the camera is equipped with a range finder focusing is easily accomplished. In the absence of a range finder, or visual focusing, as in the Rolleiflex, Superb, etc., the distance from the subject to the camera can be ascertained with a tape measure, and the lens set at this distance. Re-checking of focus every time the sitter slightly moves out of position is obviated by the depth of focus of the short focal length lens with which the miniature camera is usually equipped. Appreciable changes in either camera position or position of the subject will require a re-check of focus.

Numerous exposures of the subject can be taken and subsequently the most promising negatives are printed. Full use should be made of the advantage of the miniature camera for such work—to catch the subject in normal pose and expression without the "forced pose" look, so common in professional portraits.

Those who possess cameras allowing the interchange of different lenses will find that a lens of longer focal length will produce portraits exhibiting better perspective, and it is also recommended that a tripod be employed unless sufficient light is present to allow exposures of about 1/60 second.

The baby pictures accompanying this article exemplify the suitability of the miniature camera for child portraiture. No artificial light was employed, the sunlight streaming through the windows of the room providing sufficient illumination to allow exposures of 1/60 second at f:3.2. A full roll of film (36 exposures) was shot, while the baby was going through its antics, and portions of suitable negatives subsequently enlarged, to produce

BY  
AUGUSTUS  
WOLFMAN



photographs which made many mothers call to ask for pictures to be taken of their babies—one manner in which the miniature camera photographer can swell the funds for that new equipment.

*Print Contract:* It is possible by varying the exposure and development time to control, in a measure, the contrast in the print. If a shorter exposure is given and longer development the resulting print will have a little more snap. By exposing the print for a longer time and consequently giving it shorter development, softer results are produced.

*From Australia:* We have always stressed the fact that over-development is detrimental to fine grain, but here we have some interesting matter from a letter from an Australian reader, Mr. Eric D. Bierre, of the Fox Australian Movietone News.

(Turn to Page 26)

# THE MECHANICAL NEEDS OF THE INDUSTRY

Manufacturing Motion Picture Equipment



Developing Machines

Laboratory Equipment

Miniatures

Optical Printers

Special Projection Equipment

General Machine and Engineering Work

Under Water Camera Equipment

Synchronizing Devices

Camera Booms

"Props"

## H. W. HOUSTON COMPANY

1041 NO. SYCAMORE AVE., HOLLYWOOD, CALIF.

HEmpstead 6732

# Camera and Projection Technique of Crosene Color Process

By SILVIO DEL SARTO

**I**N the February issue of *International Photographer* we announced something new in color under the motion picture suns—the development to the point of commercial practicability of the Crosene Four-Component Additive Process for color cinematography. The following month we again devoted a certain amount of space to some very general remarks concerning the remarkable spectral fidelity, the simplicity, and the economy with which the Crosene system would permit the reproduction of color on the screen.

Considerable interest has been aroused in the photographic industry, and particularly amongst cinematographers, since the first announcement of the Crosene Process to the picture making world. Naturally, a great many inquiries have been received concerning that which seems to be a revolutionary factor in the picture business. A good share of these have been concerned with the changes, if any, which the Crosene Process necessitates in conventional camera and projection technique. In the present instance we will confine ourselves to answering this question as briefly and non-technically as possible.

It has been pointed out in a previous article that the Crosene positive print bears four identic and isomorphous images, each of a specific color value, within the film area normally occupied by a conventional black and white frame; and that while each of these four images is of a different chromatic value than the other three, all four are derived from an original bi-pack separation. Therefore, whatever changes in camera technique are dictated by normal bi-pack work, the same changes, and only those changes, are necessary in color reproduction by the Crosene Process.

The changes in the camera itself require the addition of a double magazine to carry the bi-pack negative, and an adjustment in the pressure plate at the film gate to permit the passage of the double negative. This adjustment is most important. The two negatives must be in optical contact throughout their entire frame areas in the aperture of the camera if perfect registration is to be secured in the finished print; yet the pressure against the plate cannot be so great as to cause the film to drag or the perforations to tear.

The bi-pack negative used in photographing by the Crosene Process is obtainable only from the Crosene Company. While it is standard stock, it has been especially treated in the Crosene laboratory in order to secure a more precise primary color separation, without, however, either adding to or subtracting from the photographic characteristics of its emulsion.

The double negative is loaded in the camera exactly as in normal bi-pack work; that is to say, emulsion to emulsion, with the orthochromatic negative next to the lens.

As to the actual "shooting" of the negatives, it is as difficult to prescribe general rules for the color photographer as it is for the black and white one. Each cameraman has his own theory as to what will prove most effective. Each has developed his own technique, and each technique is the correct one. But in color work, as in black and white, there are a few fundamental rules which can be laid down for the photographer.

First and most important of these is exposure. The old rule of "expose for the shadows, the high-lights will

take care of themselves," will not hold for accurate color work. There are two negatives to consider, and high-light and shadow are to be transformed ultimately into color on the screen. A sacrifice to either, regardless of how slight, and notwithstanding the latitude of present day emulsions, will destroy, to some extent at least, a perfect color balance. Therefore, it is necessary to expose correctly, and exactly so, for normal color scenes. In photographing by the Crosene Process, either exterior or interior scenes, any lens may be used. Filters are not necessary in normal work. To calculate for the correct exposure the lens is set as though the scene were being photographed in black and white and then the aperture is increased one-third of a stop. That is all the additional illumination that is necessary, and this method of calculating exposure will insure exact results.

In photographing interiors the uniformity of the illumination is of more importance than the amount. In color work definition does not depend on light and shadow. Color, and only color, can define the picture on the screen. Hence, illumination must be uniform throughout the entire scene if the best definition is to be secured. Too much illumination on the set is as bad as too little unless compensation is provided for by stopping down the lens.

These few simple rules are the only changes in conventional camera technique which photographing in color by the Crosene Process requires. Special filters for special effects, and special effects without special apparatus necessitates a specialized technique, just as in the case of black and white. The important fact is that any photograph which can be made in black and white can be made as readily in color by the Crosene Process.

Now, as to changes in conventional projection technique, the Crosene Process requires even fewer than have been set forth above with respect to camera technique.

As has been pointed out previously, the Crosene Process is an additive system, and the four component images embraced within the area of a conventional monochrome frame are passed through their respective color filters and superimposed upon the screen during projection. This is an entirely automatic process insofar as the projectionist is concerned. He merely substitutes the Crosene lens for the conventional black and white lens, which it closely resembles in general shape and size, and focuses the already superimposed images

(Turn to Page 24)

## We'll Pay Cash!

WE WANT IMMEDIATELY

Mitchell  
Akeley

Eyemo  
Bell & Howell

De Brie  
Contax

Leica, and Similar Used Cameras

— Also —

LENSES, MOTORS, PARTS, AND CAMERA  
ACCESSORIES

What Have You To Offer?

Write or Wire Today

MOTION PICTURE CAMERA SUPPLY, INC.

723 7th Avenue

New York City



# The New Akers Light Tripod

When a new tripod is introduced whose weight is only 17½ pounds and still maintaining absolute stability—its enthusiastic acceptance is self-explanatory.

Such a tripod is the new Akers Freehead, which is now being offered by the Akers Camera Company, Inc., as their latest contribution to the field of professional cinematography.

Recent years have witnessed a steady and definite trend toward the reduction of mass in mechanical design through the substitution of aluminum alloys for other heavier metals. And it is the utilization of these principles which are responsible for the great reduction in weight of the Akers Tripod.

The freehead unit itself is entirely cast of a special tough aluminum alloy and the conventionally shaped spider is also cast of the same alloy. The freehead unit is held to the spider by a large threaded ring which allows its immediate detachment for use on a baby tripod or high hat. This feature was previously only available in the most expensive of the professional tripods.

The tilt head permits a camera movement of 70° either forward or backward from a horizontal position, thus giving a total tilting arc of 140°.

The novel design of the panorama head incorporates a micromatic adjustment, permitting control of both tilt and pan tension simultaneously. This is important, as it eliminates any inequality between

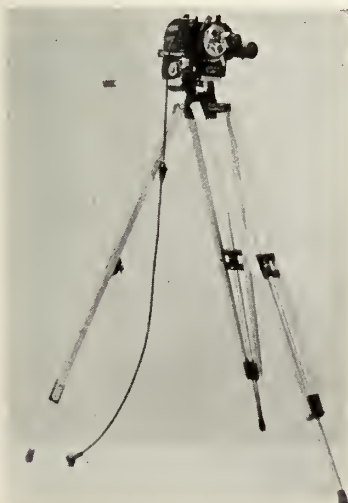
panning and tilting. And by virtue of this a 45° pan and tilt dolly shot need never entail the fear of "stair stepping" on the screen. Individual locks are provided for pan and tilt action.

On the Akers Lightweight Tripod there is a five-inch spread between the tops of the legs. Extension of the tripod height is accomplished by means of duraluminum tubes which work in guides between the maple side legs. Single rapid-action locks tighten the tubes in the desired positions or disengage just as quickly for adjustment.

The tilt table of this new tripod has no front or back. This is due to an exclusive feature which provides for a 360° adjustment of panhandle position. Right or left hand control is thus available to the operator.

The length of the panhandle is readily adjustable. And when the tripod is not in action, it fastens to the under side of the tripod spider suspended between the folded legs and is consequently out of the way in a convenient, yet safe position for carrying or shipping.

The users of Eyemos, DeVrys, DeBries, or any of the other type cameras will certainly agree that the new Akers Tripod fills a long-felt need in cinema equipment. Embodying all the desirable features and yet eliminating weight to such a marked degree, it is one of the outstanding developments of the year.



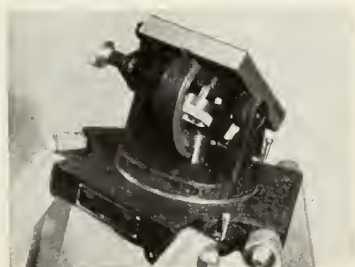
## OUTSTANDING FEATURES

1. Demountable freehead. Can be instantly transferred to baby tripod or high-hat.
2. 70° tilt either forward or backward, making a total tilting arc of 140°.
3. Individual locks for pan and tilt action.
4. Micromatic adjustment providing control of pan and tilt tension simultaneously.
5. Handle length adjustable.
6. Handle position adjustable over a range of 360°, thus permitting right or left hand operation.
7. Total weight 17½ pounds.

## FOR USE WITH THE FOLLOWING CAMERAS

AKERS FEATHERWEIGHT  
MITCHELL  
DEBRIE  
DEVRY  
EYEMO  
ETC.

# THE NEW AKERS LIGHTWEIGHT TRIPOD



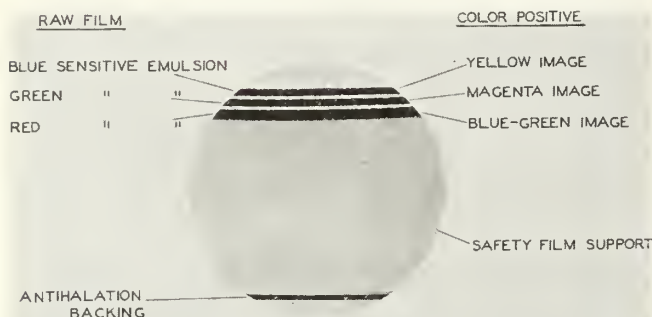
PRICE \$125

NOW READY FOR DISTRIBUTION  
ON EXHIBITION AT THE S. M. P. E. CONVENTION

AKERS CAMERA CO., INC.  
714 Santa Monica Boulevard  
HOLLYWOOD CALIFORNIA

# Eastman Kodak Company Announces Kodachrome Process

(The following material on the Kodachrome process was prepared by Dr. G. E. Kenneth Mees, vice-president of the Eastman Kodak Company in charge of research and development.)



CROSS-SECTION OF KODACHROME FILM

From the very beginning of photography, experimenters have tried to make photographs in color instead of in monochrome, and numberless processes have been put forward for that purpose. The ideal process would be one in which the color picture would be as easy to take and as certain in result as the monochrome picture is; but until now no color process has approached that ideal.

The new Kodachrome process, so far as the photographer is concerned, not merely approaches but realizes that ideal. It is as easy to take 16-mm. color pictures by the Kodachrome process as it is to take 16-mm. black and white pictures, and the percentage of good results obtained is as high.

All practical processes of color photography depend upon the division of the light into three components, red, green, and blue-violet. Pictures are taken by these three components and are then combined by some method in order to give the finished color picture.

Color processes are divided generally into two classes: the additive processes and the subtractive processes. In the first, the three components are combined by direct addition of colored images; in the second, the three components are combined by printing each negative in a color complementary to that which was used in taking, and these colored prints are then superimposed.

In the classic experiment in which Clerk Maxwell demonstrated the additive process of color photography at the Royal Institution, he showed three pictures of a colored ribbon taken by light of the three primary colors, and he projected positives from his original negatives in superposition upon a screen, each of the positives being projected through a color filter of the same color as that used in taking the negative. With modern materials and filters, this method will give an excellent reproduction of a colored object. It requires very complicated apparatus, however, and is obviously a clumsy method of obtaining a color picture.

Another type of additive process is that which is termed the "screen-unit process." In this, a screen is used over the whole area of the film, which is composed of very small color units—red, green, and blue. A photograph is taken through the screen and is thus split up into tiny areas, each of them taken through one of the three preliminary filters. On projection, these areas cover the entire picture with little spots of colored light. If a red object be photographed, for instance, the film will be fully exposed behind the red units of the screen but will not be exposed behind the blue and green units, and after reversal, the green and blue units will be blocked out by the black deposit of silver, while the red units will be projected in full brilliancy and will thus produce a

red area on the screen corresponding to the red object which was photographed.

This process has the advantage that the film can be used in any camera, exposure can be controlled in the ordinary way with a diaphragm, and the film can be projected in any projector. Its practical disadvantages are confined to the screen pattern, which is apparent on projection, to the absorption of light by the screen unit, which involves a considerable loss in brightness, and to the cost of the special screen-unit film.

In the Kodacolor process, which has been very successful for amateur cinematography, the color separation is obtained optically. In the lens of the camera is placed a multiple-color filter composed of red, green, and blue units; and the tiny lenses embossed on the film make multiple images of these three units on the film emulsion. In projection, the same three filters are placed on the lens and a color picture is obtained on the screen. A multi-color image in the form of microscopic colored strips is projected and reproduces the colors of the original.

Turning to the subtractive processes, if the three negatives are printed as images in colored dye—the red negative as a blue-green image, the green negative as a magenta image, and the blue negative as a yellow image—and these three color images are assembled in register on top of each other, a color picture will result.

It will be seen that a red color can be obtained either by the projection of light through a red filter on the screen, as in the additive processes, or by the projection of the light through successive magenta and yellow images, the superposition of the yellow on the magenta producing red. In the same way, a green image can be obtained by putting a blue-green one on top of a yellow one, and a blue-violet image can be obtained by putting a blue-green image on top of a magenta one.

In working the subtractive processes, the three negatives may be taken just as for the additive process, and then positives are printed in some way which enables them to be made of a colored material, the commonest being to make them by printing in bichromated gelatine. By this process, the three negatives can be printed in colored dye, the picture taken through the red filter being printed on gelatin dyed blue-green, the one taken through the green filter on gelatin dyed magenta, and the one taken through the blue filter on gelatin dyed yellow. If the three are superimposed in register, the resulting transparent color picture will reproduce the colors of the original subject.

Subtractive processes of this kind are being used successfully for the projection of theatrical motion pictures in color, but it is clear that to make one print only by this method, as is required in amateur cinematography,

Scheibe's FILTERS

In World-Wide Use

produce Moonlight and Night Effects in Daytime-Fog Scenes-Diffused Focus, and many other effects With any Camera-In any Climate

George H. Scheibe

ORIGINATOR OF EFFECT FILTERS  
1927 WEST 78TH ST. LOS ANGELES, CAL.

SINCE 1916

HOLLYWOOD STUDIOS USE THEM IN EVERY PRODUCTION



would be extremely expensive, whereas once the three negatives have been obtained and a method of printing them has been worked out, the preparation of a large number of prints is not unduly costly.

The new Kodachrome process is a subtractive process, but the separation of the light into the three components is not accomplished by placing the separate components in juxtaposition. They are separated in depth.

The film for this process is coated no less than five times! Nearest the base, an emulsion is coated which is strongly *red-sensitive*. This is then over-coated with a separating layer of gelatin containing some dye to act as a filter. Above this is coated a *green-sensitive* emulsion. This is over-coated again with another separating layer. Finally, there is applied a top coat which is *blue-sensitive* and which contains a certain amount of yellow dye. The five coatings are so thin that the total thickness of the film is little more than that of ordinary-line Kodak film.

The emulsions are so adjusted that the sensitizers do not wander from the layer in which they are coated, so that the bottom layer remains red-sensitive with very little green sensitivity, the middle layer is green-sensitive and is free from red sensitivity, while the top layer is sensitive only to the blue. When a picture is taken upon such a film, the three components are automatically separated in the depth of the coating. The red component is formed in the red-sensitive emulsion nearest to the base, the green component is formed in the middle layer of the emulsion, and the blue component forms the image of the top layer.

In order to obtain a color picture with this film, all that is necessary is to transform each component image of the negative into a positive image consisting of a suitably-colored dye. The image formed in the red-sensitive

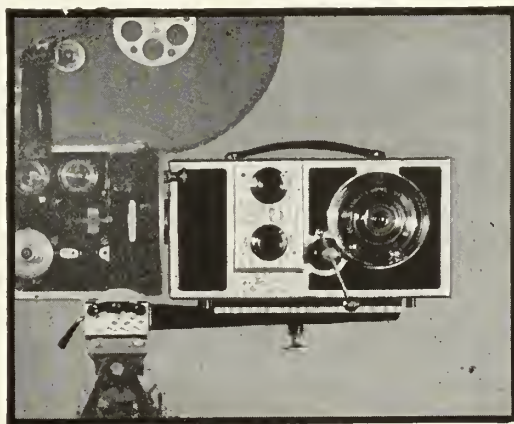
(Continued on Page 20)

layer is transformed into a blue-green positive; the image formed in the middle green-sensitive layer, into a magenta positive; and the one in the top blue-sensitive layer, into a yellow positive. This is accomplished by an extremely complex processing system. The images in the three layers are first developed, as with ordinary black and white film, and then by a series of treatments the images in the three layers are transformed into positives formed in the dye. The whole of the silver salts are removed finally, and the image consists of three superimposed dye pictures.

The process is the invention of Mr. Leopold Mannes and Mr. Leo Godowsky, Jr. These gentlemen are musicians whose names were well known in the musical world when some years ago they commenced the study of color photography as a hobby. As a result of collaboration between them and the Kodak Research Laboratories for a number of years, it was evident that the work could only be brought to a successful conclusion by a full utilization of the research and manufacturing facilities available at Kodak Park. Here, there were available experts of many kinds: organic chemists, emulsion-makers, dye specialists, photographic chemists, and experts in photographic operations—and in 1931, therefore, Mr. Godowsky and Mr. Mannes joined the staff of the Research Laboratories. By the complete cooperation of the staff of the Laboratories and of the Kodak Park Works, a task which at first appeared impossible was achieved and the Kodachrome process is the result.

The processing, as has been said, is extremely complicated and involves the treatment of the film upon three separate machines. Experience has shown, however, that it can be performed with certainty and that the commercial production of the color pictures presents little more difficulty than the production of black-and-white pictures,

## The Bell & Howell Cooke Varo Lens



*B & H Cooke Varo Lens in photographing position on the Bell & Howell Camera.*

The Varo Lens is *still* an object of wonder in the studios where it is used . . . and in the cinema world at large as well. For among the most *wanted* things among the thousands of needs in cinematography has been a lens that would "zoom." *The Cooke Varo Lens provides this magic.*

Write for full details. Sometimes available on rental to responsible studios.

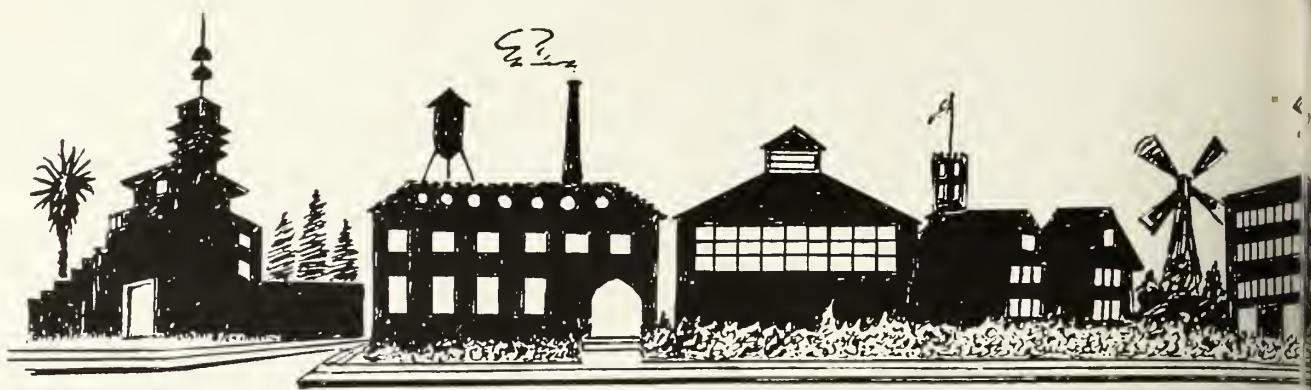
### B & H Cooke F 2 Speed Panchro Lenses

B & H F 2 Speed Panchro Lenses, corrected for the blue and red rather than blue and yellow rays, are in use almost exclusively wherever successful cinematography is being turned out. Eleven focal lengths, 21 to 108 mm. B & H Cooke F 2.5 Panchro Lenses, at lower cost, meet many needs where such speed is adequate. Seven focal lengths, 35 to 162 mm. Write for prices.

## BELL & HOWELL COMPANY

1849 Larchmont Ave., Chicago; 11 West 42nd Street, New York; 716 North La Brea Ave., Hollywood; 320 Regent Street, London (B & H Co., Ltd.). Est. 1907.

# TEK-NII THE ALLIED INDUSTRIES OF MO



## STUDIO AND NEW EQUIPMENT EXHIBIT

The exhibit at this Convention will feature apparatus and equipment developed in the studios, in addition to the usual commercial equipment. All studios are urged to participate by exhibiting any particular equipment or devices that they may have constructed or revised to suit their particular problems or conform to their individual operating conditions, or to achieve economies in production, facilitate their work, or improve their product.

Studios or equipment manufacturers desiring to participate in the exhibit should communicate with

## THE SOCIETY OF MOTION PICTURE ENGINEERS

Hotel Pennsylvania, New York, N. Y.

No charge will be made for space. Each exhibitor will display a card carrying the name of the particular studio or manufacturer, and each piece of equipment should be plainly labelled. In addition, an expert should be in attendance who is capable of explaining the technical features of the exhibit to the Convention delegates.

## VISIT TO STUDIOS

S. M. P. E. delegates have been courteously granted the privilege of visiting and inspecting the Warner Bros. First National Studio, the Fox Hill Studio of the Fox Film Corp., and the Walt Disney Studio. Admission by registration card only (see chart on opposite pages). A visit has also been arranged to the California Institute of Technology.

## Technical Sessions

An attractive technical program of papers and demonstrations is being arranged, with special emphasis upon studio technique, equipment, and practices. Several evening sessions will be held to permit those to attend who would be otherwise engaged in the daytime. All sessions will be held at the Hotel Roosevelt.

## Transportation

Special summer tourists' rates go into effect on all railroads May 15. Convenient arrangements can be made to travel by rail, boat, bus or plane, and special sight-seeing itineraries can be planned by any carrier or by agencies such as Cook's or Foster Service.

# SOCIETY OF MOTION Spring C HOLLYWOOD, CALIF Hotel R

## Headquarters

Hotel Roosevelt—in the heart of Hollywood; special rates to S. M. P. E. delegates (see fly-leaf of folder). Excellent accommodations and Convention facilities assured; minimum rates guaranteed.

## Semi-Annual Banquet

An outstanding feature of every S. M. P. E. Convention. Addresses will be delivered by eminent members of the industry, followed by dancing and other entertainment; music by

George Hamilton's recording orchestra. Tables reserved for 8, 10, or 12 persons. Tickets obtainable at the registration desk.

## The Eighth Wonder

(Delegates and their ladies are urged to view Eighth Wonder of the World before they return home. Just ask the hotel clerk or any citizen of Hollywood and he'll tell you where to drive to get a view of the Metropolitan District of Los Angeles at night. There is nothing on earth so amazingly gorgeous.—The Editor.)

	FIRST SESSION Monday, May 20	SECOND SESSION Tuesday, May 21	
9:30 A.M.	FLORENTINE ROOM Registration Society Business Technical Papers Program	FLORENTINE ROOM Technical Papers Program	FLORENTINE ROOM
12:30 P.M.	Informal Get-together Luncheon: short addresses by eminent speakers (Tickets at registration desk)	Luncheon at studio of Warner Bros. First National. (Admission by registration card only)	Luncheon
2:00 P.M.	FLORENTINE ROOM Technical Papers Program	Inspection of Warner Bros. First National Studio	V
6:00 P.M.	Dinner Period	Dinner Period	
7:30 P.M.			
8:00 P.M.	Visit to Walt Disney Studio (Admission by registration card only)	ACADEMY ROOM Technical Papers Program	S

Technical Papers Programs . . Entertainment . . . Semi-Annual  
Special Program of



# TOWNE ON PICTURE ARTS AND CRAFTS



## PICTURE ENGINEERS

### Convention

MAY 20-24, 1935

Sevelt

#### Ladies Program

A special program for the ladies attending the Convention is being arranged by Mrs. E. Huse, hostess, and her Ladies' Committee. Special trips and social gatherings will be held, and a special suite will be provided in the Hotel where the ladies will register and convene for the various events upon their program.

Passes to the theaters mentioned above will be available, and opportunity will be provided for visiting the beautiful points of interest in and about Hollywood and Los Angeles.

#### Hotel Rates and Accommodations

Excellent accommodations and Convention facilities are assured, and minimum rates are guaranteed for the duration of the Convention. Rates for S. M. P. E. delegates and their families are as follows:

Single: 2.00 per day; one person, single bed.  
Double: \$3.50 per day; two persons, double bed.  
Double: \$4.00 per day; two persons, twin beds.  
Suites: \$6.00 and \$8.00 per day.

#### A Memory to Take Home

(Imagine one Flower Bed, thirty miles long! And a Flower Garden two hundred miles long! And all Wild Flowers! Many of them may be gone by Convention time, but there should be enough left in field and desert to astonish the beholder—and they are not hard to find.—Editor's Note.)

#### Golf, Theaters, Entertainment

Passes to Grauman's Chinese and Egyptian Theaters, Pantages' Hollywood Theater, Warner Bros. Hollywood Theater, and Gore Bros. Iris Theater will be available to registered delegates, for use during the open afternoons and evenings. Several golf courses are conveniently located, and arrangements can be made for sight-seeing trips and other diversissements, in addition to those provided in the Convention program.

#### Hotel Roosevelt

Golfing privileges will be available to members, at the usual course rates, at the Hollywood Country Club (North Hollywood), Oakmont Country Club (Glendale), Rancho Golf Club (Westwood, Calif.), and the Westwood Golf Club (Westwood, Calif.). The California Pacific International Exposition opens in San Diego, Calif., on May 29.

#### Officers and Chairmen in Charge

W. C. KUNZMANN, Convention V-P.  
E. HUSE, executive V-P.  
J. I. CRABTREE, Editorial V-P.  
J. O. BAKER, Papers Committee  
P. MOLE, Local Arrangements Committee  
O. F. NEU, Exhibits Committee  
W. WHITMORE, Publicity Committee  
E. R. GEIB, Membership Committee  
H. GRIFFIN, Projection  
MRS. E. HUSE, Hostess

#### Pacific Coast Section

G. F. RACKETT, Chairman  
E. HUSE, Past-Chairman  
H. W. MOYSE, Secretary-Treasurer  
W. C. HARCUS, Manager  
K. F. MORGAN, Manager

THIRD SESSION Wednesday, May 22	FOURTH SESSION Thursday, May 23	FIFTH SESSION Friday, May 24
FROM Papers Program	FLORENTINE ROOM Technical Papers Program	FLORENTINE ROOM Technical Papers Program
	Luncheon Period	Luncheon Period
li Studio, Fox Film nvision by registra- or)	Visit to California Institute of Technology	FLORENTINE ROOM Technical Papers Program
	Dinner Period	Adjournment of Convention
Bouquet of the S. M. g. entertainment, k prominent mem- e industry (Tickets sitation desk)	ACADEMY ROOM Technical Papers Program	For hotel rates, golfing, appa- ratus exhibit, and other details, see other pages of this folder.

Bouquet . . . Equipment Exhibit . . . Studio Visits . . . Golfing  
ment for the Ladies

## EASTMAN KODAK COMPANY ANNOUNCES KODACHROME PROCESS

(Continued from Page 17)

although the complex processing treatment and the expensive chemicals used in it naturally increase the cost considerably.

The pictures made by the new process are a revelation. Previously, color in photography has involved sacrifice. More light was needed for taking the photographs; it was difficult to get sufficient depth of focus; some definition was lost; it was only possible to project pictures on a small screen because of the loss of light in projection. In spite of these disadvantages, motion pictures in color have been very much appreciated, but their use has always been limited. The ordinary amateur motion picture has been in black and white, and only when taking conditions were favorable and when projecting conditions were not too exacting could color pictures be used.

When you see Kodachrome pictures on the screen you realize how wonderfully colored the world is. An artist, of course, knows this, but most of us are not artists and we don't realize the subtle colors that occur in everyday scenes—flowers and foliage, and summer landscapes, where bright colors strike the eye. But the new process has been brought to perfection during the winter, and it has taught me to look for the purple-brown of the winter woodland, and the blue of the ice and of the shadows in the snow; so that I have realized, as everyone will soon realize, that it is only in color that we can make any adequate representation of the world around us.

With the coming of the new process, amateur motion pictures will be in color. There is no need any longer for us to pretend that the world is in monochrome and to represent the glorious colored world in which we live by a gray ghost on a screen.

\* \* \*

We may perhaps anticipate a few questions with regard to the practical working of the process.

The exposure required is somewhat more than that of the ordinary panchromatic film used for making black-and-white pictures. We recommend that the next larger stop be used than that which would be used for black and white. Thus, whereas pictures in sunlight are ordinarily taken on panchromatic film at  $f/11$ , for Kodachrome film we recommend  $f/8$ .

For ordinary pictures, no filters or other attachments are required in the camera; but we are providing two camera filters for special purposes. One of these is used when it is required to photograph objects at a great distance, objects which in ordinary photography would be obscured by haze. The filter, in fact, plays the same part as the yellow filter used with panchromatic film; but it would, of course, be impossible to use a yellow filter, that would affect the colors. The filter used absorbs ultra-violet light only. If no such filter is used at great distances, objects will appear too blue, owing to the scattered ultra-violet light, which will record on the film as if it were blue light. Occasionally, this haze-cutting filter is useful for objects at a medium distance. For instance, when there is snow on the ground the air seems to be full of scattered blue light and the picture will be a little too blue unless the ultra-violet light is absorbed.

A filter is desirable if pictures are taken by artificial light, since otherwise the pictures will appear altogether too yellow or red. This filter is of a light blue color adjusted to compensate for the yellowness of the artificial light source.

At the present time, and probably through 1935, the processing will be done only at Kodak Park. We are, however, building the necessary machines and later on will be prepared to process the film at our other stations throughout the world.

Up to the present we have not been able to arrange to make duplicates. It is not improbable that eventually we shall succeed in making duplicates; but this requires a good deal of special study, and we have not yet had time to work it out.

We are also not yet prepared to supply Kodachrome film in other sizes than 16 mm.—not because it is impossible to do this but because up to the present we have only been able to construct the necessary processing machinery and to work out the methods for the 16-mm. film.

The introduction of the new Kodachrome process seems to me likely to mark a great step in the history of photography. What developments may follow that initial introduction I shall not attempt to prophesy, but to me the possibilities of the new process appear very great.

## Hollywood Camera Exposition

This Hollywood Camera Exposition, which will be held June 27 to June 30, 1935, in all probability will surpass the exposition at Leipsig. All phases of photography will be represented, including aerial, X-Ray, microphotography, etc. The latest developments in photographic arts and processes will be demonstrated. Lectures on microphotography, in fact lectures covering all the latest developments in photography will be delivered.

The big show is not exclusive for the professional. There will be just as much to interest the 16 mm. cameraman or anyone interested in picture takin'. An advisory committee is now being formed, which will include leaders of every phase in the photographic field. The scene of action will be the beautiful Ambassador Auditorium. Our old friend and associate editor, Earl Theisen, will be curator.



**MAX FACTOR'S**  
NEW  
*Satin Smooth*  
**LIQUID FOUNDATION**  
A REVELATION IN FACIAL MAKE-UP



HIGHEST SPEED !  
FINEST QUALITY !!

EASTMAN  
*Super X*  
PANCHROMATIC  
NEGATIVE

Proves By Its Own Performance  
A Degree of Photographic Perfection  
Even Greater than the Greatest  
Hopes of its Manufacturers • • •



J. E. BRULATOUR, INC.

## A HOLLYWOOD CAMERAMAN IN THE LAND OF A BILLION FACES

(Continued from Page 5)



Mr. Herrmann holding Old Glory left at Little America by the first Byrd expedition.

would bring out from the snow vaults, where he stored it, the film to be used in the program for that night, for it required at least that long to thoroughly dry before using.

The temperature in the snow vaults usually stood at about 60 degrees below zero and there was never any trouble with it in the projector after it was dried twelve hours.

#### Lighting Equipment

The lighting equipment consisted of two 1000 watt portable generators; two Cargo lights and one strip light of six Fotoflood lamps.

For shooting exteriors magnesium flares were used and these flares put on a gorgeous show against the dark background of the Antarctic night.

#### Transportation

The cinematographic department had for transportation a train of seven dogs, belonging to Mr. Herrmann. These served during the fall of 1934 and the spring and summer of '34 and '35. This team was all lost and then Edward Moody, a regular driver with a team of eleven fine dogs was assigned to the photographers.

#### Shooting in the Air

"We spent quite a bit of time in the air," said Mr. Herrmann. "We made twenty-six flights for pictures, one of them being a jaunt to Rockefeller Mountains—far away from Little America. We took off at 10 P. M. December 31, 1934, and arrived at the mountains at one minute past midnight. I flew in the 'Pilgrim' and we took pictures of our sister ship, the 'Condor,' while passing over the mountains near midnight. We landed, January 1, 1935, at 3 A. M. Peterson was in the 'Condor.'

#### Herrmann's Scenario

"As we photographed our regular program, I put it together with a sort of impromptu scenario and it worked out satisfactorily. Such a device is helpful when the theatre of action is so great as that of the Antarctic."

#### Flashes from Aurora Australis

The boys had no fresh fish to eat and only two kinds of canned fish. The penguins were edible, but were not

very popular—it was too much like killing human beings to butcher those Emperor Penguins.

"I didn't have a shave for fourteen months," said Mr. Herrmann, "but the whiskers were mighty useful and we got along pretty well. They saved a lot of time, too."

Widely different light conditions caused by the passage of time brought about almost insurmountable obstacles to perfect photography. Conditions, right for December, were all wrong for April, etc. Filters used to perfect satisfaction were Eastman Wratten Aero No. 2.

It was a temptation to wander away from headquarters and the rule was to be gone no longer than four hours, but one time Mr. Herrmann was absent nine hours on a camera quest and caused a bit of anxiety when he was absent at mess. He was not shot at sunrise, but was bawled out by the entire personnel.


There was much activity in Mr. Herrmann's camera shop. The movie cameras always had to be baked, thawed and dried. The Akeley's were always in danger of frost even from the breath and when film would break because of the cold all re-threading had to be done with bare hands or with silk gloves. Besides there was a variation of 80 degrees in the camera shop from the floor to the ceiling and this caused lots of grief. To touch the metal parts of a cold camera always meant that a patch of skin would adhere to the metal, not only a painful, but dangerous thing to happen.

#### The Spell of Antarctic

A lengthy sojourn in the Antarctic does something to the men who are fortunate enough to go there. In their eyes is something that is different from the weary, hunted look that one sees among the city dwellers every day.

Perhaps it may be that the great, unutterable silences, the soul resting peace, the far flung horizons and the endless panoramas of glittering white and blue, like the waters of Lethe, bring to these adventuring pilgrims glimpses of that eternity of which we hear so much, but know so little.

The Motion Picture Relief Association is the best friend the cameraman has in time of distress. Don't forget your duty to the M. P. R. A. when you are prosperous.





**EVERYTHING  
PHOTOGRAPHIC**  
for Professional and Amateur

New and used. Bought, sold  
rented and repaired. Designers  
and manufacturers of the  
H.C.E. Combination Lens  
Shade and Filter Holder  
for any size lens.

Send for bargain catalogue

**Hollywood Camera  
Exchange**  
1600 Cahuenga Blvd.  
Hollywood  
Tel.: HO-3651  
Cable:  
**HOCAMEX**





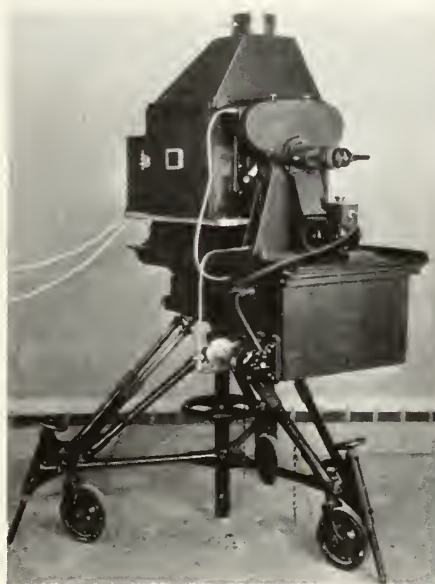


# The Neumann Process Projector and Stereoptican Slide Projector For Backgrounds

(Patents Pending)



We offer our services to equip your Studio complete with Process and furnish with each unit information about handling of film, etc. Our Equipment is working for Fox Film Corp., Columbia Picture Corp., Consolidated Film Industries and Studios in India.



Our equipment is light and portable and always 100% steady. Permits shooting of Process Keys (Film to use on Process Projector) with any type of Pilot Pin Camera. May be operated as high as 60 frames and as low as 6 frames per second in front of any high intensity arc lamp, without injury to the film. No cooling system, such as water or air is used.

Our Stereoptican Slide Projector, for use with high intensity arc lamp, produces a picture of unsurpassed cleanliness and is built interchangeable with Process Projector, to use with

same lamp and stand. Slides may be projected an unlimited time without disturbance on the screen, like bubbles, streaks or shadows of impurities.

Our Screens, a product of the Transco Products Co., are far superior to any Process screen ever manufactured. Its light transmission and fine grain are unsurpassed. Expert workmanship and finest materials guarantee quality. Every Screen is balanced to compensate for the falling off of light, or the elimination of the hot spot. These Screens stand up under any climatic condition and can be rolled and shipped.

## Prices: F. O. B. Factory—

Projection Head.....	\$2200.00 (motors extra)
Slide Projector.....	590.00
Transco Screen.....	2.50 per square foot

Complete price list of additional accessories will be sent upon request.

## Neumann Process Projector Company

Cable Address—  
Western Union—  
Neuprocess, Hollywood.

6227 Santa Monica Boulevard,  
HOLLYWOOD, CALIFORNIA  
Telephone: GRanite 0515

## THE MAN BEHIND THE CAMERA

(Continued from Page 7)

grain wanted, and if so, to what degree? Is this the main consideration? Extremely fine grain formulas are notorious as film speed reducers. They also are weak in shadow detail. So, if film speed is of first consideration, such formulas are to be avoided. Similarly, if shadow detail is important, they must be passed up. There is of course a happy compromise—a formula which produces fairly fine grain without any important drop in speed and shadow detail. No, I shan't give any formulas, for this would be senseless, besides requiring many pages of this magazine.

The formula business is one that is purely an individual problem. I know of workers who swear by a certain formula. I also know another group that cannot get even passable results with it. What's the answer? Everything depends upon the individual—the man behind the camera. He differs considerably from his comrades in equipment, knowledge, working conditions, etc. Therefore, no one can advise for individual cases, no more than a tailor can cut one suit of clothes to fit you, your brother, and me.

Naturally beginners cannot know of these details in photography. They, in all probability, consider photography as a cut and dried proposition which can be followed according to certain laws. Up to a certain point this is true. If it were not, what a fix we would all be in without picture-making activities. As for formulas, the best advice to the beginner is to get a copy of a book of formulas, such as, for example, "Photographic Handbook, How To Make Good Pictures, The Leica Data Book," etc. These, along with other similar works, contain numerous formulas from which the amateur can select a few for test purposes in order to determine which more nearly suits his requirements.

Of course, the old rule is to adhere to one formula, once you have found one that works to your entire satisfaction. I suspect that those who worry themselves so much over technicalities are the experimenters who flit from one thing to another. They are not content unless they develop each roll of film in a different solution to see what happens. While such an attitude is an admirable one from the investigator's standpoint, it spells defeat for the hobbyist who wants only to make good pictures.

I might further point out that in practically every case the modern camera can be relied upon as being mechanically and optically perfect. Nine out of ten complaints are unjustified. It brings us back to the old story—it's the man behind the camera who makes the picture, not equipment, not involved technicalities. Learn the camera and the fundamentals of photography first. If, after you are able, with your knowledge, to turn out good pictures you want to go deeper into photography, fine and dandy—but above all, don't forget that the picture is the thing. Don't get all tangled up in complications which will blind you to the real purpose of your hobby. Ride your hobby, and study it, but be wise enough to realize the limits beyond which you are certain to flounder. Remember the technicians—many were once excellent photographers, but now, through constant probing and investigating, they have lost both their knack and taste for picture making. In other words, they have gone so far over the border that they can no longer enjoy their hobby.

It's the man behind the camera. It's up to you. And "by his questions shall you know him" would make an excellent motto. Keep it in mind.

In SAN FRANCISCO STOP at the

### Hotel Mayfair

626 Polk St., near Civic Center

100 Rooms	100 Baths
Single \$1.50	Double \$2.00

Special Rates for Permanent Guests

Operated by a Member of Local 659

DARK ROOM FACILITIES PROVIDED

## CAMERA AND PROJECTION TECHNIQUE

(Continued from Page 14)

as a single image on the screen, just as he would normally. Since the component parts of the Crosene lens are immovably positioned when the lens is made, an error in adjusting the unit on the projector is impossible.

Because the Crosene print carries four reduced frames within the area of a conventional black and white frame, it might be thought that film shrinkage would be a ruinous factor insofar as perfect registration is concerned. Such, however, is not the case. Film will shrink in two directions, laterally and longitudinally. If there is any shrinkage of the Crosene print it will manifest itself as a color fringe on the screen. Now, since the shrinkage must affect the *whole* frame area, it must follow that each of the optical centers of the four Crosene frames will shift only in a proportional amount to the other three. The Crosene optical unit is equipped to re-establish the correct inter-relationship of the optical centers of the four frames to within .0001 of an inch, and thus remove any sacrifice in registration occasioned by shrinkage. This adjustment for possible shrinkage is the only change which the Crosene might require in conventional projection technique.

To further protect the projectionist from error, the Crosene print is so marked, that, should breakage occur, reassembly of the small frames in any but their correct sequence is impossible.

So it becomes more apparent that the Crosene Process definitely has something to give to the motion picture industry. Here is a process of revolutionary nature offering a rare fidelity of color reproduction on a monochrome basis, with a minimum change in conventional production technique.



### CAMERA & PROP RENTALS

Camera Supply Co.  
1515 Cahuenga Blvd.  
Hollywood, Calif.

Ruddy Geraus, Manager  
GLadstone 2404

Nite Phone GLadstone 6583  
Cable Address — "CAMERAS"



GENERAL PRODUCTION • NEWSREELS • EXPEDITIONS  
AERIAL PHOTOGRAPHY • MICRO-PHOTOGRAPHY



## AKERS FEATHERWEIGHT

**THE PRECISION 35 MM. HAND CAMERA THE INDUSTRY HAS BEEN WAITING FOR  
SILENCED FOR SYNCHRONIZED SOUND**

A general utility camera combining precision with versatility and portability. As the product of years of research and development the AKERS FEATHERWEIGHT has emerged from the laboratory and taken its place among the outstanding contributions to the field of cinematography. A new engineering bulletin is just off the press. Write for it.

### CONSULTATION AND ENGINEERING SERVICE

Our laboratory and engineering department is prepared to handle any problem associated with motion picture equipment. It is suggested that interested persons avail themselves of these facilities. Those living out of town are invited to write us about their problems.

**AKERS CAMERA CO., INC.**  
7414 SANTA MONICA BOULEVARD  
HOLLYWOOD, CALIFORNIA

Please mention The International Photographer when corresponding with advertisers.

## MINIATURE CAMERA PHOTOGRAPHY

(Continued from Page 13)

"I use the Sease No. 3 formula but first of all desensitize in the standard strength of Pinakryptol Green for two minutes. Then wash for ten minutes to get rid of the dye, and develop slightly longer than usual (25-30 minutes at exactly 65°F.).

"The resulting grain is so microscopic that I have produced many enlargements five feet wide with no trace of visible grain, and I am inclined to think they would go twice that size."

**Purchasing Chemicals:** Under this heading we are not going to discuss the various brands of chemicals available to the miniature camera photographer, but needless to say, the chemicals used for film processing should be bought in original packages, and only those supplied by reputable firms. To purchase unknown brands in bulk because of cheaper cost is poor economy; the inferior chemicals may ruin the negatives. Some chemicals are supplied in different forms, and the photographer may be puzzled with the amount to use of the form he has on hand when the formula calls for another.

Sodium carbonate, for example, is supplied by chemical manufacturers in three forms, which are as follows:

1. Crystals—with 10 parts of water, containing 37% of sodium carbonate.
2. Monohydrated sodium carbonate—crystals with one part of water, containing 85% sodium carbonate.
3. The dry particles—containing 98-99% of sodium carbonate.

Sodium sulphite is supplied in two forms: Crystals and dry sodium sulphite. The crystals contain 50% of the dry sulphite.

that it can be supplied in the form of either, a powder,

In purchasing boric acid the photographer will find granules, or crystals. The granular or crystal form should be chosen because of much quicker solubility. The

powder floats on top of the liquid and is difficult to dissolve.

**Reticulation:** This detriment usually props up during warm weather and since summer is not very distant we will review the causes of reticulation so that the miniature camera worker will avoid having his films ruined in this manner. The usual cause of reticulation is the subjection of the film to widely different temperatures during its processing, such as being transferred from a warm developer to a cold fixing bath, etc. Since the tap water is usually used for preparing all the necessary solutions as well as being employed for the final washing of the film, it is advisable to take its temperature first, then maintaining all solutions at this temperature; that is, if the temperature of the tap water is suitable, so that it will itself not have to be cooled.

To keep the solutions in the tank at the proper temperature a water bath can be employed—the tank is placed in a small basin into which cool water is allowed to run. For this purpose a metal tank will serve the purpose better, than one of a bakelite composition, for the latter is a poor conductor of heat, whereas the metal tank will readily allow the solution in the tank to adjust itself, in temperature, to that of the water bath. However, if the solutions are cooled to the proper temperature before being poured into the tank, and no external means, as the use of a water bath, or ice being placed about the tank, is to be employed, then a bakelite tank is called for. Its poor heat conductive properties will prevent the temperature of the solution to rise rapidly.

Another important point which is usually overlooked and which has been emphasized by a well known miniature camera worker, is that the film itself must be of the proper temperature before being placed in the developer. The latter may have been cooled to 65°F., and then when film which has been in a warm room (about 92°F.) is placed in the cool developer, reticulation will occur.

It is necessary to first cool the film to the proper temperature.

Another cause of reticulation reported by some amateurs is the use of too strong a hypo bath.

**Rolleiflex Photographers:** The submission of prints to the Rolleiflex Salon should not be neglected by all owners of this popular camera. A Caribbean cruise is offered, as well as \$300 in photographic equipment for those whose prints are selected to receive awards. Full details on the Rolleiflex Salon can be had by writing to Burleigh Brooks, 127 W. 42nd St., New York City.

The Motion Picture Relief Fund is the Cameraman's best friend in days of stress. Don't forget it in your days of prosperity.

FRANK C. ZUCKER

J. BURGI CONTNER

## MOTION PICTURE CAMERA SUPPLY, Inc.

NEW MITCHELL SOUND  
CAMERA NOW ON DISPLAY

We sell Simplex Portable 35mm Sound Projectors,  
Moviolas—also new and used Mitchell, B. & H., Akeley,  
DeBrie Cameras and Equipment.

LARGEST STOCK OF NEW AND USED  
PROFESSIONAL EQUIPMENT IN THE EAST

We only sell  
equipment that  
we can guar-  
antee.

Phone, write,  
wire or cable  
for quotations.

Eastern Representatives  
MITCHELL CAMERA CORPORATION  
HARRISON FILTERS  
FEARLESS PRODUCTS

723 SEVENTH AVENUE  
NEW YORK CITY

Telephone BRyant 9-7755

Cable Address: Cinecamera

Subscribe Now!

\$200

for a year's subscription to the  
INTERNATIONAL  
PHOTOGRAPHER



---

# FASTER

---

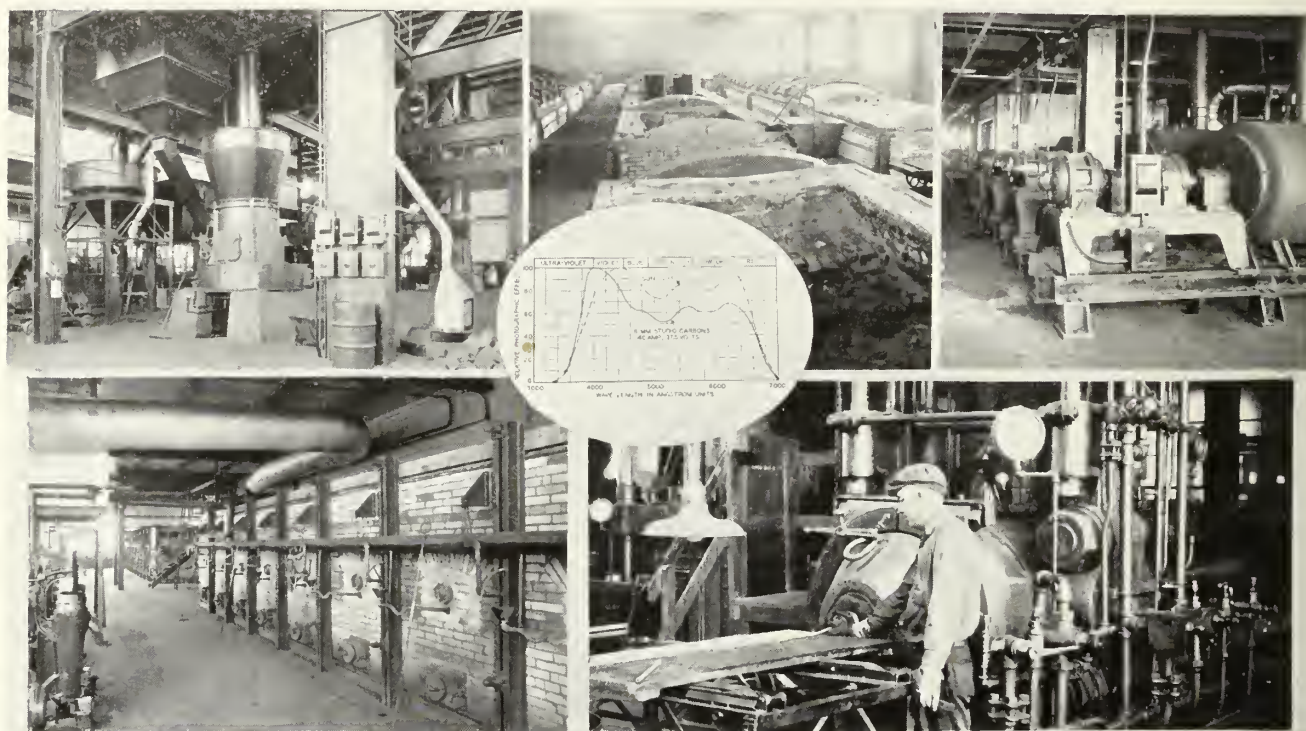
MUCH faster than regular Eastman Super Sensitive "Pan" under tungsten light. Faster even than that famous film is when *hypersensitized*. That is half of the news about Eastman Super X Panchromatic Negative. The other half: Eastman Super X shows no increase in grain size over Super Sensitive "Pan"... in fact, the tremendous gain in speed has been achieved without sacrificing or impairing any valuable characteristic. ... You are invited to investigate the most striking film improvement since the advent of the first Eastman Super Sensitive emulsion. Eastman Kodak Company, Rochester, N. Y. (J. E. Brulatour, Inc., Distributors, New York, Chicago, Hollywood.)

---

## EASTMAN *SUPER X* PANCHROMATIC NEGATIVE

# The Manufacture of Illuminating Carbons

By W. C. KALB



Upper Left—Crushing and Milling Equipment. Upper Center—Pugs of lampblack ready for removal from the Calcining Furnace. Upper Right—Carbon Mixing Room. Lower Left—View within the Lampblack Furnace Building. Lower Right—Hydraulic Extrusion Press for forming the Plastic Mix. Center—Photographic effect from Studio Carbon compared with that from Sunshine.

**I**T is a striking paradox, yet none the less a fact, that the most brilliant light man has ever produced comes from one of the blackest of materials—lamp black. When Sir Humphrey Davey in 1800 produced the first electric arc between two pieces of carbon he little realized that his discovery provided a means of obtaining the highest temperature and the most brilliant light ever produced by artificial means, nor did he realize that his discovery would be such an important element in the growth of the industry so large as the motion picture industry of today.

The carbon arc has been of great service to the motion picture industry from the standpoint of photography. It was the first artificial source of illumination used when the production of pictures was taken into the studio. Today it is essential to the production of the highly popular color films and is extensively used for black and white photography. In the motion picture theatre, the carbon arc stands supreme. No other source of light possesses the concentrated brilliancy demanded for projection by the large screens and long throws of present-day movie palaces—a brilliancy millions of times that of the light reflected from the screen. Without carbon arc motion pictures would still be confined to small auditoriums, probably seating no more than a few hundred patrons.

The production of electrodes capable of withstanding the terrific electronic bombardment of the electric arc and temperatures in excess of 6600° Fahrenheit requires the most careful selection and preparation of raw materials, the utmost care and precision in the processes of production, and constant research to keep the product abreast of new developments in the art of motion picture production and projection. No material other than carbon is able to endure the destructive forces of the arc.

In a thoroughly modern plant at Fostoria, Ohio, devoted exclusively to the manufacture of carbon products, National photographic and projector carbons are manufactured under strict technical control. Accuracy and precision mark every step of production. The basic raw materials used are the purest commercial forms of carbons, such as lamp black, and the bonding agents, tar and pitch. Although these materials are as black as night, great care is constantly exercised to establish and maintain their purity. The tar and pitch are refined and distilled in one unit of this plant to insure their purity and to obtain the required degree of viscosity and bonding properties. The lamp

black is produced by burning oil or other suitable hydro-carbons in special forces under restricted draft. A view within the lamp black building is shown in Figure 1. The conditions under which the fuel is burned leave unconsumed a large portion of the carbon and this settles out in the form of soot or lamp black in large settling chambers adjacent to the burners. The lamp black as originally deposited, however, is not ready for use in the making of carbons since it contains a high percentage of volatile material. It is accordingly mixed with tar into a plastic dough, formed into brick-like pugs and baked at a sufficiently high temperature to drive off all volatile elements and leave a solid block of pure carbon. In Figure 2 the calcined pugs of lamp black may be seen ready for removal from the furnaces in which they have been baked.

Before the carbons are formed, the solid material of which they are composed must be reduced to a fine flour. Figure 3 shows the crushing and milling equipment in which the calcined pugs of lamp black are pulverized and separated into lamp black flour of suitable fineness. Each lot is thoroughly blended with portions of preceding lots in order to maintain the maximum degree of uniformity. The powdered ingredients of the carbon are then mixed in exact proportions with the bonding agent, pitch, in the mixers shown in Figure 4. The resulting mix is plastic and when heated can be formed under pressure into "green" carbon rods of the required diameter. Large hydraulic extrusion presses, Figure 5, are used to form the carbons. Under a pressure of several tons per square inch, the plastic carbon mix is squirted through an accurately ground die on to cooling boards as shown in the illustration. For carbons that are to have a central core of modified composition, the pure carbon shell is extruded in the form of a thick walled tube.

After cooling, these green carbons become substantially rigid but, in reality, are still in plastic form. Before they can be used they must be baked at high temperature to drive off the volatile elements of the pitch and leave a homogeneous structure of pure carbon in which the originally powdered elements are firmly bound together by the coke residue from the pitch. Naturally this baking process results in some shrinkage and the die through which the carbons are extruded must be made somewhat larger than the diameter required in the finished carbon.

When the carbons come from the furnace they are cleaned, cut to the required length and inspected for straightness and



visible faults. The central core of special composition is inserted in those carbons which have been made up in tubular form and these are again baked to solidify the core material. Next the carbons are pointed, in some types, precratered, and those that are oversize are ground to exact diameter. After being stamped with the grade designation, each carbon passes through a final inspection which includes an X-ray examination of those types containing elements which are made visible by this method of inspection.

Various functions are performed by the core in carbons and the composition of the core differs in the various types. In some carbons, such as those used in the low intensity arc, the core is of neutral carbon, softer in composition than the outer shell. Its purpose is to steady the arc, prevent wandering of the arc stream over the crater surface, and stabilize operation on alternating current. In flame type carbons, metallic elements are used in the core to support a longer arc than is possible with solid or neutral cored carbons and to give the required color to the flame of the arc stream. With neutral cored carbons, nearly all of the light emitted is from the craters or tips of the carbons and very little from the arc stream itself. With flame carbons the opposite is true and most of the light comes from the brilliant flame of the arc stream. The color of this light can be controlled by the ingredients of the core. For example, cerium in the core of the carbon produces a bluish white flame. This is the well known "White Flame" carbon, extensively used in photography. Yellow flame carbons have calcium in the core and strontium is used to give a red tint to the flame. In the high intensity arc the core material is the source of luminous vapors which, confined in the center of the impact of the arc stream, attain a brilliancy far beyond that of carbon at the temperature of vaporization, a brilliancy that closely rivals that of the sun itself.

In the production of illuminating carbons there is a constant search for something better. The development of the high intensity direct current arc seemed, at the time, the acme of achievement in light production. Its field of application in projection, however, was limited to the larger theatres. There was need for a carbon which would bring within the economic reach of the smaller theatres the advantages of brilliant snow white screen illumination which high intensity projection provides and the comfortable level of general illumination which it permits. The National Carbon Company Research Laboratory met this need by developing high intensity carbons to operate on alternating current as well as new direct current high intensity carbons (Suprex) suitable for operation in simplified lamps at arc currents much lower than had previously been possible.

Another example of recent advance in carbon arc lighting is the new motion picture studio carbon. The development of improved methods for the production of colored motion pictures created a need for a better studio light source. Accurate reproduction of color requires a light which gives essentially the same photographic effect as sunlight. The simultaneous recording of sound necessitates a light source that is perfectly quiet in operation. To meet these dual requirements the laboratories of National Carbon Company, Incorporated, produced what is essentially a new type of carbon arc, one which departs from the normal characteristics of the regular white flame carbon arc and takes on many of the characteristics of the high intensity arc. At the same time, National Carbon Company engineers co-operated with lamp manufacturers to produce lamps in which these carbons are burned with a perfectly steady light, complete absence of noise, and exceptionally high efficiency. Figure 6 shows the relative photographic effects of sunlight and of the light from the new Motion Picture Studio carbons. Over forty per cent of the radiation from this new carbon arc is photographically effective, and the output in lumens is 25% higher than that from regular white flame photographic carbons operated under the same conditions. Besides establishing itself as a necessity for color, this new studio light has shown definite superiority for black and white photography.

The relative intensity of the various colors in the light from the studio carbon arc is almost identical with that from the high intensity projector carbon arc. High intensity projection is therefore strongly recommended for the new colored film. When the color quality of the projection light is the same as that of the light under which the picture was photographed, it produces an image on the screen which conforms more closely to the original colors of the scene than can possibly be obtained from projection light of different quality.

Highly specialized equipment is required for the manufacture of illuminating carbons. Not only is great care necessary in the selection and preparation of raw materials but, at every stage of production, the greatest precaution is exercised to maintain the conditions which experience has proved essential to uniformity of the product. The high quality of the carbons at present available has been attained only through painstaking research and years of manufacturing experience. The Research Laboratory of National Carbon Company, Incorporated, keeps in constant touch with production. Trained technical men are in

## RECENT PHOTOGRAPH AND SOUND PATENTS

By ROBERT FULWIDER,

Registered Patent Attorney

(Wilshire at La Brea, Los Angeles)

1,992,989—Film Roller and Driving Mechanism. Bruce Burns, assignor to Hughes Industries Co., Ltd., Los Angeles.

1,993,084—Camera with Built-in Actinometer. Clarence J. Brewer, Chicago, Ill.

1,993,085—Optical Printer. Arthur Carpenter and Maurice Recker, assignors to United Research Corp., Long Island City, N. Y.

1,993,101—Lens Shifting and Indicating Mechanism. Albert Kindelmann, et al., assignor to International Projector Corp., New York City.

1,993,178—Photographic Device. Hunt Mitchell, et al., Carbondale, Ill.

1,993,209—Moving Picture Projector. Carl J. Craig, Chicago, Ill.

1,993,246—Process and Apparatus for Recording Sound. Rene Nublat, Paris, France.

1,993,448—System in Stereoscopic Photography. Ralph Huber, Seattle, Washington.

1,993,576—Monopack Process. Leonard T. Troland, assignor to Technicolor Motion Picture Corp., Hollywood, Calif.

1,993,672—Screen for Projecting Machines. Sevoy Kelliher.

1,993,735—Film Handling Apparatus. Warren D. Foster, et al., assignors to Kinatome Patents Corp., New York.

1,993,770—Picture and Sound Projection Apparatus. Ewald Boecking, assignor to International Projector Corp., New York.

1,993,795—Sound Recording System. Robert A. Miller, assignor to Bell Telephone Labs., New York.

1,993,812—Method for Printing Cinematographic Films. Paul Vanet, assignor to Le Film Ozophone, France.

1,993,884—Photographic Camera Convertible to Projector. Chas. E. Hillery-Collings, assignor to Camera Projectors, Ltd., London, England.

1,993,929—Sound Recording and Reproducing. John H. Hammond, assignor to Hammond Holding Corp., Gloucester, Mass.

1,993,958—Film Exposure Timing Machine. Vincent de Ybarondo, assignor to Patco, Inc., Los Angeles.

1,994,054—Machine for Goffering Lenticulated Film. Johannes Thiry, assignor to Opticolor Co., Glarus, Switzerland.

1,994,059—Safety Device for Motion Picture Projectors. James C. Wobensmith, Philadelphia, Pa.

1,994,586—Magazine Type of Motion Picture Camera. Joseph Milhalyi, assignor to Eastman Kodak Co.

1,994,601—Elevating Device for Projectors. Howard Wellman & Alvin Schubert, assignors to Eastman Kodak Co.

1,994,627—Filmpack for Multicolor Photography. Arpad Von Biehler, assignor to Agfa Ansco Corp.

1,994,735—Developing Method for Cinematographic Films. Paul Vanet, assignor to Le Film Ozophone, a corporation of France.

(Turn to Page 30)

control of each process. Samples from every lot of carbons are tested by burning in the type of lamp for which they are intended. As a result of this extreme care, the carbons reaching the user can be depended upon to give uniform quality and intensity of light as well as satisfactory performance in all other respects.

## MITCHELL SILENT CAMERA IN ACTION



Here Still Photographer Art Marion shoots the camera crew and some of the actors of "Rainbow's End." Left to right—John Stack, sound; George Sherman, assistant director; Paul Guerin, electrician; Raine Service, script girl; Ray McCarey, director; Gilbert Warrenton, camera; Job McBernie, assistant; Ernest Coopland, grip; Hoot Gibson, star; Charles Hill, comic; Stan Blystone, heavy; Art Marion, still; invisible.

## PHOTOGRAPH AND SOUND PATENTS

(Continued from Page 29)

1,994,875-1,994,876—Photographic Film Free from Halation. William Schneider, et al., assignors to Agfa Anso Corp.

1,994,913—Film Measuring and Splicing Machine. Albert S. Howell, assignor to Bell & Howell Co.

1,995,252—Title Attachment for Cameras. Keinert, Kopke & Faucett, Brooklyn, N. Y.

1,995,437—Color Motion Picture Camera. Armeno Secci, assignor to Francita Societe de Films en Couleurs, Paris, France.

1,995,444—Photographic Printing Emulsion. William Berr and Bertram Storr, assignors to Ilford, Ltd., Ilford, Essex, England.

1,995,964—Screens for Cinematographic Projections. Leopold Darimont, Brussels, Belgium.

1,995,976—Process for the Production of Sound Films According to the Amplitude Process. Erwin Gerlach, assignor to Siemens & Halske, Berlin, Germany.

## OTTO FOCUS GOES EAST

Charles P. Boyle, for many years an ace cinematographer of Hollywood, departed April 13, for Manila where he will be associated with Paul Perry in Mr. Perry's famous new color laboratory, the only one in the Orient.

Mr. Boyle is a photographic operative of wide experience, an expert in photographic equipment, a first rate color engineer, a most popular figure among the cameramen and a clever satirical writer whose page, "Out of Focus," has long been a favorite feature of *The International Photographer*.

His new duties in Manila will occupy his entire time, but he has promised his friends and the editor that he will steal enough time from sleep and meals to send an occasional story about what Otto Focus is doing in the Orient.

"*Vaya usted con Dios*," Charlie Boyle.

## "ON THE ROAD TO MANDALAY"

Wilford Deming and Clinton Herberger, well known sound engineers, sailed April 13, from San Francisco, on the steamship "Silverbeech," for an indefinite sojourn in Bombay, India.

Their first stop will be at Manila where they will pay a visit to Paul Perry, at his new color laboratory, after which they will touch at Straits Settlements, Singapore, Java, Bali, en route to their destination.

Please mention *The International Photographer* when corresponding with advertisers.

## B &amp; H ACTIVITIES

In connection with the announcement that the National Geographic Society and the Army Air Corps are planning a second stratosphere flight, to take place this summer, comes word that a Bell & Howell Eyemo Camera has been selected for taking motion pictures during the flight. The purpose of the pictures is to show the appearance of the earth at different altitudes and to indicate the manner in which the stratosphere balloon rotates as it ascends.

The Eyemo is a turret model with a 6-inch lens. In order to cut through the tremendous depth of atmosphere at extreme heights and record the surface of the earth from the balloon gondola, heavy red filters and film sensitized to red will be used.

A piece of specially selected optically flat glass will be mounted in the gondola, forming a porthole through which the camera will point. The camera will be operated automatically to permit the operator to attend to other matters.

\* \* \*

## B. &amp; H. 16mm. PROJECTOR CATALOGUE

Bell & Howell Company has just issued a 16mm. projector catalogue which is of especial interest to all concerned with motion picture projection because of the astounding progress in projection equipment which is reflected in its pages. Illustrated and described is the new, powerful Filmo Auditorium Projector, the first and thus far the only 16mm. projector to employ a 1000-watt lamp. It takes 1600-foot reels, and thus has sufficient film capacity for giving a one-hour program without rethreading.

Also presented in this catalog is a new 750-watt projector, moderately priced, but also offering 1600-foot film capacity. There is also the Filmo JS, fully gear driven, even to feed and take-up spindles, with 400-foot film capacity and 750-watt illumination. The Filmo S 750 and 500-watt projectors, priced remarkably low for machines of Bell & Howell quality, are also presented, to say nothing of the Bell & Howell 16mm, sound-on-film reproducer which is scoring such a hit for educational, entertainment, and commercial purposes, and the B. & H. Continuous Projection Attachments, used commercially with both silent and sound projectors.

This compact 16 page catalogue will be sent free of charge on request to Bell & Howell Company, 1801-15 Larchmont Avenue, Chicago.

\* \* \*

## BEFORE AND AFTER

Cooperating in the rehabilitation program of the Federal Housing Administration, Johns-Manville Company, building material manufacturers, have prepared a five-reel talking motion picture on house remodeling entitled "Before and After." This picture is being shown by Bell & Howell 16mm. portable talkie projectors to building contractors all over the country to inculcate practical ideas of house improvement.

"Before and After" is different from ordinary pictures especially in that after two reels have been run the house lights are turned on and a booklet is distributed to the audience. The film is then started again, with the house lights still on. Four hundred feet of film are run, reproducing sound but no pictures, the sound being the voice of a narrator taking the audience through the booklet page by page. Following this, the remainder of the film, consisting of pictures and sound, is shown with the lights off.

The contractors who see and hear the film, stimulated by the ideas and information so graphically conveyed, are enabled to make an effective presentation of the Federal Housing plan to remodeling prospects.

## GEORGE STEVENS ADVANCES

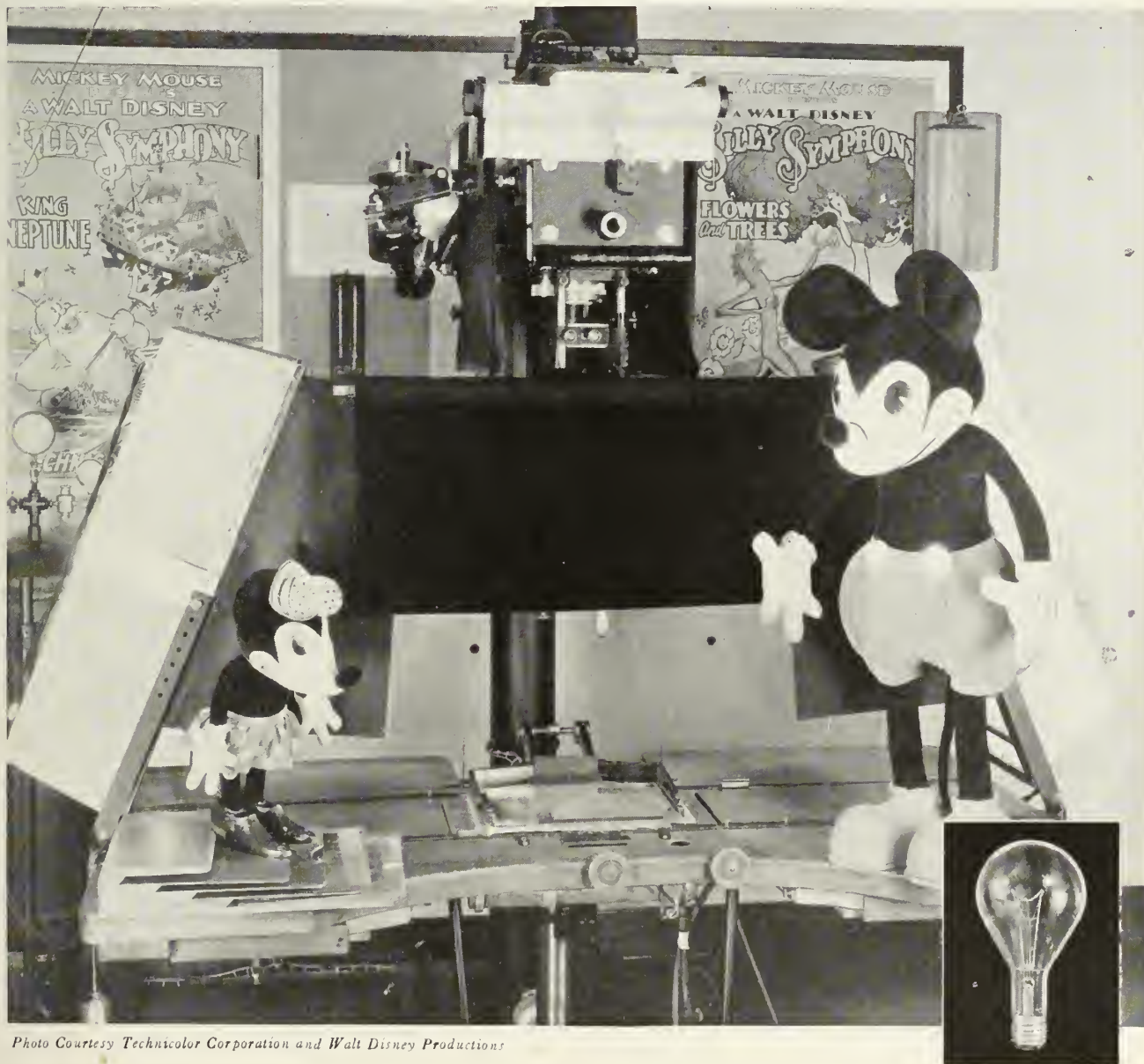
George Stevens has been chosen by R.K.O. to direct Katharine Hepburn in "Alice Adams," her next starring vehicle. Mr. Stevens is on his way to write his name in a high place on the Cinema's Triumphal Arch.

## RCA DROPS SUIT

The Hollywood Motion Picture Equipment Company and Art Reeves do not infringe patents. Early in 1933 patent suit for infringement was filed against the above named company. RCA have dismissed the suit without cause and prejudice.



# Mickey Mouse in **COLOR** chooses **G-E MAZDA LAMPS**



*Photo Courtesy Technicolor Corporation and Walt Disney Productions*

Mickey Mouse is stepping into color. And he is stepping into it with the aid of G-E MAZDA lamps.

G-E MAZDA Photo Blue lamps provide his color camera with the light it needs for good color rendition. Their light is steady and clean. They do not require adjusting or delay. Also there is a convenient size.

The news is important to every cinematographer because it illustrates exceedingly well this important fact: *General Electric makes lamps for every lighting need.*

Are you bringing the benefits of this versatility of G-E MAZDA lamps to your pictures? General Electric Company, Nela Park, Cleveland, Ohio.

**GENERAL  ELECTRIC**  
**MAZDA LAMPS**

## MOTION PICTURE SOUND RECORDING

(Continued from Page 9)

inch) in thickness separates the diaphragm on one side from a flat metal plate called the damping plate. The diaphragm is clamped between stretching rings that are screwed up after assembly until the diaphragm is drawn so tightly that its resonant frequency is in the neighborhood of 5700 cycles per second (c.p.s.). This places the natural period of the diaphragm safely out of the normal frequency range of the human voice; although from a sound transmission standpoint it would be better to have the resonant point well about 8000 c.p.s.

The diaphragm being mounted so close to the back plate provides a high damping effect and tends to reduce the sensitiveness of the transmitter; but the stretching of the diaphragm and the presence of the back plate help to reduce the effect of diaphragm resonance and improve the fidelity of reproduction obtained with the microphone.

*The Carbon Cells*

On each side frame opposite the center of the diaphragm are mounted carbon electrodes similar to the ones employed in the single-button carbon microphone. Opposite these electrodes are pure 24-karat gold-plated areas on the diaphragm; and the two chambers formed

between the carbon electrodes and gold-plated spots on the diaphragm are filled with polished carbon granules. These cells are each designed to have a resistance of 100 ohms, as measured from the carbon electrode to the diaphragm, thus providing an over all resistance of 200 ohms from one carbon electrode to the other. This over all value is said to be the operating resistance of the microphone; so the microphone will work most efficiently into a circuit having an impedance of 200 ohms.

The arrangement of the carbon cells and the associated circuit may be seen schematically in Figure 2. In this diagram, the transmitter is connected to a standard microphone transformer that has a primary impedance of 200 ohms and a secondary that is of the proper impedance to work into the grid-filament circuit of a vacuum tube. A potentiometer for regulating the amount of current supplied to the buttons of the transmitter by the battery, and jacks to permit the plugging in of a milliammeter to read the current drawn by each of the buttons, are also shown. This is the standard arrangement used with the microphone in public address systems.

with the microphone in public address systems. \* \* \* Figures No. 1 and 2 mentioned here will be shown with Chapter XIX in June issue.

## California Pacific International Exposition

Camera!

Lights! Action!! Sink 'em!!!

The curtain rises May 29th on America's Exposition, 1935 in world-famous Balboa Park, San Diego.

Of interest to photographers throughout the world is the extensive Fifth Annual International Salon of Photography to which internationally known lens experts—as well as hundreds of lesser lights—have sent prints will open simultaneously and run for the duration of the Exposition—until Nov. 11th. The salon will be housed in the new, modern Palace of Photography in the heart of the Exposition grounds; here, too, will be found the office, studios and dark-rooms of John Sirigo, official photographer to the Exposition.

Stand in the jeweled tower of the Palace of Science in Balboa Park and lift your eyes to the glittering shore-line of the blue Pacific. There you may see, mile on mile, the snowy froth of the surf-line as it breaks incessantly on the quiet sand of the beach.

From this lofty vantage point it is not difficult to visualize those first proud Spanish ships that sailed up from the Southern horizon almost 400 years ago. They were odd ships, with their round bows, their square sterns and towering poop decks lifted to the sky. And yet they had about them a certain grandeur that does not attach to the liner of today. There was paint and gold, carving and armorial emblazonry about them that somehow suggested those proud, impoverished Spanish gentlemen in command.

Drop your eyes to a nearer scene and drink of the beauty that is part and portion of this modern San Diego. Here, you will say, is the city of your dreams—here is a city sparkling like a rose diamond in its setting of green, and sheltering easily in the thirteen-mile stretch of its bay more than half the grey vessels of the American fleet.

The gem city itself is built around Balboa Park, third largest in America, where an abundance of foliage gleams in perpetual sunshine. Framing the scene, but dim in blue distance, are the high green peaks of the distant Cuyamacas.

This, then, is the setting—this is the background against which will be woven the colorful tapestry that will be America's Exposition—1935. From the vantage

point of this commanding Tower, one looks down upon the trail-slashed timber lots and gardens of 1400-acre Balboa Park. Nearer at hand, clustered about the base of this high place, one sees the tremendous unit of artistic buildings in which will be housed the varied exhibits of this California Pacific International Exposition.

Here, on May 29, 1935, the people of California's first city will present an exposition that promises to be unrivaled in the annals of west coast history.

In this sub-tropical garden of the southland, housed in buildings seemingly rich with age, the countless exhibits of a changing world will be offered with the spice of contrast.

San Diego builds for this Exposition with the priceless background of careful preparation. Over a period of years in which Balboa Park has been developed to the point of perfection, the people of the city have had in mind the ultimate presentation of an international Exposition. Millions have been poured into this plan and many of the Spanish structures in the exhibit unit have the advantage of a floral and shrubbery back-drop sufficiently mature and mellowed as to have moulded themselves into the very lines of the colorful buildings.

There is nothing of rawness in this San Diego Exposition. High towers—architectural triumphs in themselves, are made more beautiful in the blaze of bougainvillea climbing to their highest point. Cream white facades half revealed through the drooping calm of pepper trees; bell towers lifting high above the heads of tropical palms and overshadowed in turn by the broad-leaved fragrance of eucalypti.

The California Pacific International Exposition has for its setting a background of shrubbery and floral decoration conceived in the slow, deliberate process of nature. An amazing variety of shrubs and flowers—incredible reaches of timber where tropical palm and silver pine interlace their branches—calm, restful courts—shadow-splashed patios—lily pools reflecting the red-tiled roofs of overhanging buildings, these things are part and portion of an exposition setting that no spot on earth could duplicate.

Man's achievements will be graphically depicted in every conceivable form. Exhibits of commerce and indus-



try will portray the tremendous changes that have crept upon the industrial world and will depict in dramatized action the contrasts between old and new.

Remarkable new buildings are being constructed to house outstanding exhibits from America and abroad. The Palace of Electricity, the Palace of Varied Arts, the Palace of Education, the Palace of Transportation—all are being constructed along lines that will offer something new and startling in the architectural world.

Searching for the unusual as a means of architectural expression, the builders of the San Diego Exposition have gone back into the history of America for ideas that will present a new thought to the architectural progress of the world. Based on their findings, new structures of Exposition center will combine the best points of modern and ancient art in producing structures that border upon the style of prehistoric pueblos found in America. Receding planes, rounded corners and overhanging cornices will accomplish a simplicity bordering on absolute plainness.

Suggestions of color and decoration, ordinarily achieved through use of applied paints, will be accomplished through the variegated shadings of living plants and flowers as they vine across the faces of the structures or hang from cornice troughs beneath the roofs.

The green and lavender of trailing lantana will be harmonized with the general color plan of the Palace of Electricity; the pink and red of ivy geranium will match the exterior of the Palace of Varied Arts. And so on in endless variety will the plants and semi-tropic flowers of San Diego be adopted to an architectural scheme that is new and refreshing.

Special days of celebration will be offered for states and cities . . . nations will, through their representatives, offer events of entertaining and instructive nature.

Thrills in the air . . . more than 1000 planes in a massed review above the Exposition center . . . warships in review in the nearby harbor and open for public inspection.

And still the story is half untold . . . a magnificent show, unbelievable in its vastness and never ending attractions. A never ending pageant with no two days offering the same program of diversion. That, in brief, is the California Pacific International Exposition, opening in May of 1935 in San Diego, California.

S. S. Van Dyke, director, complains of guessing when and how long an audience will laugh at gags. Previews give an approximation for each picture, but that's as close as they come to it. There's a real problem. On the speaking stage, an actor can wait for his audience, but the film goes on. Why not a variable speed projector, technicians, one the operator can slow down when the audiences laugh loud and long and speed up when the gag misses fire?

In "Air Fury," Columbia does research in stratosphere flying, coupled with an electrical device by means of which airplane engines can be destroyed from the ground. If this be true, we can stop worrying about that next war.

## DURIAN-EATING HOLLYWOOD'S NEWEST CRAZE

Our globe trotters returning home to Hollywood are crazy about an age-old custom, but recently contacted in the Orient—that called "durian-eating."

The Durian tree is a native of Malay, large and lofty like an American elm and the bearer of a fruit of the same name, scientifically known as *Durius Zibethinus*.

The leaves of this tree are almost seven inches long, leathery, shiny green and scaly, while the fruit is oval and like a large cocoanut in size. It is encased in a leathery integument covered with spines, short, stout and sharp and if its stem is broken off in falling it is difficult to pick it up.

An analysis follows: Water, 55.50; protein, 2.30; fat, 2.80; carbohydrates, 23.70; M. M., 1.24; sugar, 4.80; sucrose, 7.9; starch, 11.00.

Mr. Lewis W. Physioc, ace cameraman, recently returned from Malaysia, Java, Bali, Siam, Burma and other points in that part of the Orient, knows the Durian well and he agrees with the English army officers that it is the miracle of the vegetable garden.

When it is in season the beasts of the jungle fight for the Durians among themselves and the people also fight for them. Even the elephants are crazy about them and they are much sought after by the old folk who regard this curious fruit as the prize rejuvenator.

Split in two the Durian presents an interior of five cells filled with satin smooth cream colored pulp and with two or three seeds like chestnuts. Of this amazing fruit Alfred Russell Wallace writes:

"The Durian is indescribable. A rich butter-like custard lightly flavored with almonds gives the general idea of it, but intermingled with it come wafts of flavor that call to mind cream cheese, onion sauce, brown sherry and other incongruities. There is a rich glutinous smoothness in the pulp which nothing else possesses, but which adds to its delicacy. It is neither acid nor sweet, for it is perfect as it is. In fact to eat Durians is a new sensation worth a voyage to the Orient to experience."

In downtown Los Angeles a firm of importers have built up a wonderfully lucrative business among the Hollywood movie folk who not only know the best things when they see them, but have the money to pay for them.

Eat Durians and snap your fingers at the declining years as they pass by.

Half a billion candlepower for lighting Battle of Waterloo sequence in "Becky Sharpe."

If there are any real spiders on the set where part of "Vampires of the Night" is being shot, the Black Widows will be green with envy. From fifty gallons of a special rubber compound, a machine spun 600,000 square feet of synthetic web over a ruined castle.

William Daniels, ace cameraman, has photographed Greta Garbo in nineteen of her twenty pictures. Loyalty, or habit.

## INCREASE IN EDITORIAL STAFF

A lovely baby daughter was born to Mr. and Mrs. Charles Felstead, 4625 St. Charles Place, at the Cedars of Lebanon Hospital, March 29th. The young lady has been named Ardeth Louise. The christening cere-

mony took place April 21st at the home of the parents. Mr. Felstead, Associate Editor and author of the series of articles on motion picture sound recording appearing in this magazine, is the Instructor in Commercial Radio at the Frank Wiggins Trade Evening School.

# INTERNATIONAL CLASSIFIED ADVERTISING

Brings results—Rates 45 cents per line—minimum charge one dollar per insertion. For Rent—For Sale—Wanted—For Exchange, etc.

## FOR SALE AND RENT—CAMERAS

**FOR SALE OR RENT**—Mitchell and Bell & Howell silenced cameras, follow focus. Pan lenses, free head, corrected new aperture. Akeley, De Brie, Pathe, Universal, Prevost, Willart, De Vry, Eyemo, Sept, Leica. Motors, printers lighting equipment. Also every variety of 16 mm. and still cameras and projectors. B & H Cameras with old type shuttles silenced \$150. Everything photographic bought, sold, rented and repaired. Send for our bargain catalogue. Hollywood Camera Exchange, 1600 Cahuenga Blvd. Phone HO. 3651. Cable, Hocamex.

**BELL & HOWELL** Professional Motion Picture Camera complete with 35—40—50—75 mm. lenses and Mitchell tripod legs. Also Akeley Camera complete with 2 in., 6 in., 17 in. lenses. Mervyn Freeman, 1960 South Vermont Ave., Los Angeles, Calif. Phone: REpublic 3171.

**EDUCATIONAL CAMERA BLIMP** and Dolly for Mitchell Camera follow focus device, geared free head, three wheels, pneumatic tires, cost \$1250.00, special \$500.00. Hollywood Camera Exchange, 1600 Cahuenga Boulevard, Hollywood, Calif. Cable HOCAMEX.

**GENUINE BELL & HOWELL** 1000 foot magazines in excellent condition \$50.00 each. Four hundred foot magazines \$25.00 each. Four hundred foot Mitchell magazines \$25.00 each. Cases for above \$10.00 each. Hollywood Camera Exchange, 1600 Cahuenga Boulevard, Hollywood, Calif. Cable HOCAMEX.

**USED SINGLE SYSTEM CAMERA** and Sound Equipment. \$650. Complete except batteries. Camera Dept., Moviesound Company, Jamaica, Long Island.

## FOR SALE—CAMERAS AND EQUIPMENT

**REAL BARGAINS** in 16 and 35 mm. movie equipment and still cameras. Newest types cameras and projectors in all popular makes. Save money on film, lights, lenses and all essential accessories. Our 36 years of experience stands back of every sale. Before you buy, send for our new bargain booklet. Burke & James, Inc., 223 W. Madison St., Chicago.

**LIKE NEW**, Educational Camera Blimp, geared free head, follow focus device and three-wheel dolly. Cost \$1250.00. Our special \$500.00. Hollywood Camera Exchange, 1600 N. Cahuenga Blvd., Hollywood, Calif.

**MITCHELL CAMERA**, very quiet steel gears, 3 Pan Tachar lenses. Free head, complete studio equipment, excellent condition, \$1300. CAMERA SUPPLY CO., LTD., 1515 North Cahuenga Blvd., Hollywood.

**BELL & HOWELL CAMERA HEAD**, 170 degrees, three lenses, B & H tripod legs and head, beautiful condition, \$750. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

**BELL & HOWELL** and Eyemo Cameras, Lenses, Magazines, Tripods, Moviolas, Splicers, all kinds of Sound and Laboratory equipment. Eastman and Dupont spliced negative, tested and guaranteed, 2 1/4¢ per foot, on daylight loading rolls, \$2.75. Inquiries invited. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood.

**MITCHELL CAMERA**—Like new and guaranteed—silenced Academy aperture, Pan Tachar lenses, free head tripod, 1000 ft. magazines, complete \$2000.00. Hollywood Camera Exchange, 1600 No. Cahuenga Blvd., Hollywood, Calif.

## SOUND RECORDING

**LIKE NEW ARTREEVES** portable double head sound recording outfit, with Bell & Howell silenced camera, complete in every detail. A Real Bargain—\$3500.00. Price without camera—\$2500.00. Hollywood Camera Exchange, 1600 North Cahuenga Blvd., Hollywood, Calif.

**ART REEVES**, latest model 1935, double system sound recording installation, factory guaranteed, Automatic Speed Control Motor, Twin Fidelity Optical Unit, Bomb microphone, the only genuine, modern, workable ArtReeves equipment for sale in Hollywood outside factory. Price, complete in every detail, \$2,400. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

**FOR SALE**—Mitchell tripod friction head—good as new. \$150. Box Z, International Photographer.

**SOUND MOVIOLOA**, excellent condition, Model UC, price \$450.00; also new H.C.E. Freehead Tripod and Legs for Bell & Howell, Eyemo or De Vry Cameras—\$75.00 complete. Hollywood Camera Exchange, 1600 No. Cahuenga Blvd., Hollywood, Calif.

## FOR RENT—CAMERAS

**TWO THOROUGHLY** silenced Mitchell cameras. Follow focus device, Pan Astro lenses, Freehead—1000 ft. magazines. J. R. Lockwood, 523 No. Orange St., Glendale. Douglas 3361-W.

## THE INTERNATIONAL PROJECTIONIST

**THE INTERNATIONAL PROJECTIONIST**, a monthly magazine published in the interests of the projectionist. Interesting, instructive. Yearly subscription U. S. and possessions, \$2; foreign countries, \$2.50. James I. Finn Publishing Corp., 1 West 47th St., New York.

## WANTED TO BUY

**MOTION PICTURE**—Still Picture—Laboratory and Cutting Room Equipment—Lenses—Finders—Tripods. Highest prices paid. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood, Calif.

**WANTED**—Sound head for Powers 6-B projector—35 mm. Address Box 333, International Photographer, 1605 Cahuenga Ave., Hollywood, Calif.

**WANTED**—Golf clubs and bag. J. R. Lockwood, 523 North Orange St., Glendale. Phone Douglas 3917.

## CAMERA REPAIRING

**BELL & HOWELL** cameras with old type shuttles silenced, \$150. Hollywood Motion Picture Equipment Co., 645 No. Martel Ave., Hollywood.

**VERY POWERFUL FLOODLIGHTS** of new design. Will burn through a 1000 W. Rifle with Cable—\$5.00. With 12 foot collapsible Stand—\$20.00. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

**MITCHELL MOTOR**—1000 ft. Mitchell magazines. J. R. Lockwood, Glendale. Douglas 3361-W.

**FOR SALE**—75 mm. Cooke Lens. F.2 in Mitchell mount complete. 50 and 75 mm. Astro lenses, mounted and unmounted. J. R. Lockwood, 523 North Orange Street, Glendale. Douglas 3361-W.

**BUYERS READ** these classified advertisements as you are now doing. If you have something for sale or exchange—advertise it in these columns. **THE INTERNATIONAL PHOTOGRAPHER**, 1605 No. Cahuenga Ave., Hollywood.

**FOR RENT**—25 and 35 mm. lenses, motor adapters, Mitchell Standard tripod head, baby tripod, 400 ft. Mitchell magazines. J. R. Lockwood, 523 North Orange St., Glendale, Douglas 3361-W.

## POSITION WANTED

**DO YOU WANT A CAMERAMAN** who is an expert on studio production; or an expedition cameraman who knows every corner of the world; or a cameraman who thoroughly understands the making of industrial pictures; or an expert newsreel photographer; or an expert color cameraman? A limited number of cameramen, backed by years of experience, are available. Write stating your requirements and we shall be glad to assist you in choosing the kind of cameraman you want. **INTERNATIONAL PHOTOGRAPHER**, 1605 North Cahuenga Ave., Hollywood.

## MISCELLANEOUS

**COMPLETE COURSE IN FLYING**—If interested in aviation, see Roy Klaffki, 1605 North Cahuenga Ave., Hollywood.

**DUPLEX PRINTER**, Mitchell 400-ft. magazines, Mitchell tripod legs, No. 5 strand 60" flexible shaft; 2" F:2 Cooke lens; 3" F:2.5 Cooke lens; 4 1/4" F Cooke Kinic lens in mounts for B & H or Mitchell cameras, also other miscellaneous equipment. Ed Estabrook, 430 North Flores St., Hollywood, Calif. ORegon 5003.

**WANTED**—To know of the whereabouts of motion picture relics, documents, or equipment of a historical nature for Museum purposes. Write Earl Theisen, care of International Photographer, 1605 Cahuenga Ave., Hollywood.

**THE NEW YORK PUBLIC LIBRARY**, Office of the Director, New York City, would like to procure the following old issues of **INTERNATIONAL PHOTOGRAPHERS**—all of 1929; January to October of 1930; and November and December for 1931. It will be appreciated if anyone having these numbers will communicate with us or with R. J. Lingel of the New York Public Library.

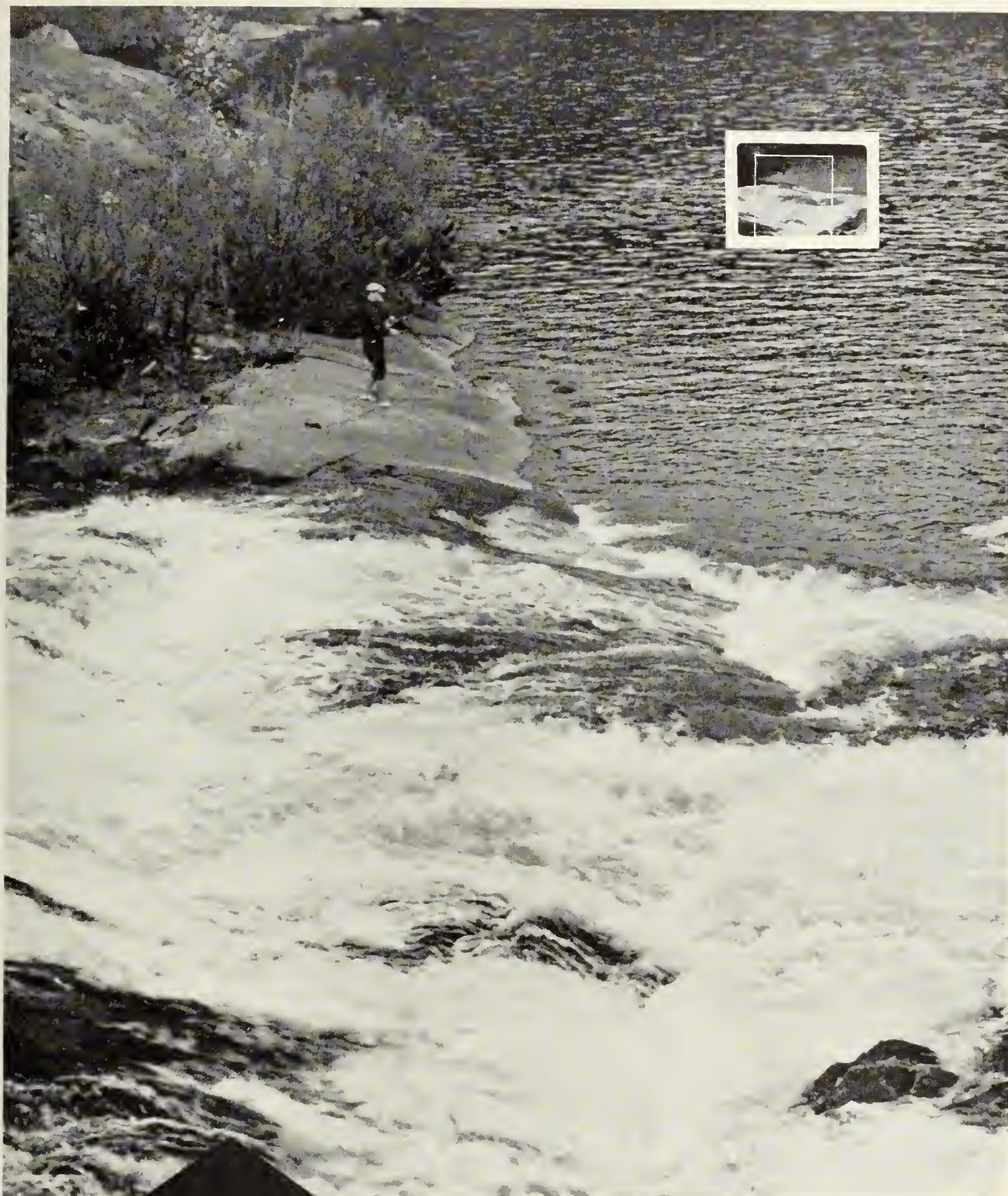
**WANTED: ONE, TWO OR THREE REEL SUBJECTS** for foreign distribution. Would consider a few six to eight reel features. Will positively NOT consider financing any unfinished subject or sounding silent film. State briefly what you have to offer in first letter. On those subjects that are acceptable a small cash advance will be made. Address Box 142, International Photographer.

# \$200

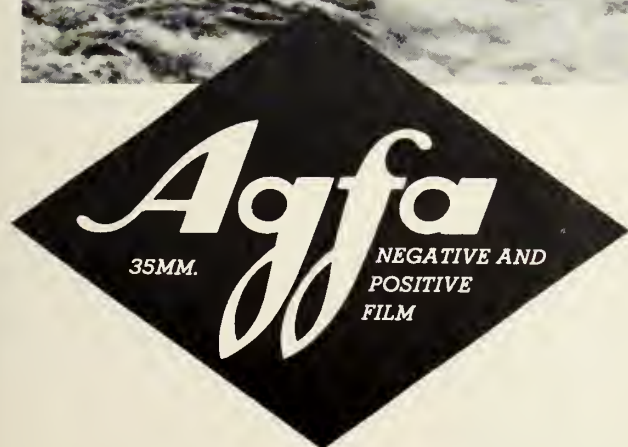
The cheapest "Buy" among publications allied to the Motion Picture Industry is

THE  
INTERNATIONAL PHOTOGRAPHER  
at \$2.00 per year.





*Actual Enlargement From a 35MM. Movie Frame*



**A**UDIENCES don't know much about fine-grain negative—but it's one of the things that make them say, "What splendid photography!" Agfa's new, improved SUPERPAN possesses fineness of grain that is an outstanding achievement in film manufacture. Made by Agfa Anseo Corporation in Binghamton, N.Y.

**C. KING CHARNEY, Distributor**

HOLLYWOOD  
6372 Santa Monica Blvd.  
Tel. Hollywood 2918-2919

NEW YORK  
245 West 55th Street  
Tel. Circle 7-4635



# CINEMACARONI

By ROBERT TOBEY

(With sauce for those who like it.)



## HOLLYWOOD HONEYMOON

(A novel novel of a thousand and one nights in a daze)

By R. Thritis

### The Characters:

**Lili Liverblossom**, as ravishingly beautiful as her name implies. Lili is the brightest star of Flamboyant Films, Limited. But Lili is on the wane, so

**Perriwether Murgle**, Lili's press agent, suggests that as a publicity stunt she should marry

**Hiram von Willeze**, one-time famous director. He has become somewhat lost in the script here, and so there is little to say about him, but we'll get to him yet. Meanwhile, Perri has left Lili's apartment in search of von Willeze, and gets tangled up with

**Willy Nilly**, a large Bald Eagle, who carries Perri off across the desert by mistake, or brute strength: it's hard to say which. Lili, worried over Perri's plight, (no, not flight, plight!) figures out, godnohow, that a ghost will know the way to the eagle's lair. So she enlists the aid of a ghost writer named

**Bill**, whose mother never was quite sure of his last name. Bill has promised to write up a ghost for Lili. Now go on with the story.

### CHAPTER VII

#### The Hand-Made Ghost

Lili's phone jangled petulantly. So did Lili's nerves. She picked up the phone. It was easier than picking up her nerves.

"This is Bill," said the voice at the other end of the wire.

"I paid you," answered Lili sharply, and prepared to hang up.

"This isn't the same Bill," said Bill patiently. "This is Bill."

"Oh, you mean Bill," cried Lili. "Of course, I remember you! Why don't you call me up sometime?"

"I will," said Bill. "When do you think you'll be home?"

"As soon as they fix the front door," said Lili. "I'm locked out. Call me about an hour ago. I wasn't awake then."

"That's a date," said Bill. "But before I hang up, I want to tell you I have that ghost for you."

"That's marvelous!" exclaimed Lili, clicking her teeth. She was always clicking her teeth. Even the publicity department couldn't cure her of it. She spelled it clique. She'd always wanted a clique of her own.

"Wait'll you see him," said Bill. "He's a funny looking creature. I had to make him up in such a hurry, I couldn't be choosy. He has red whiskers. I'll send him right over."

"Thanks a lot, Bill," said Lili. "Will I know him when I see him?"

"You'll know him when you don't see him," answered Bill. "He looks like a gust of wind."

"Then how can you tell he has red whiskers?" queried Lili caquely.

"By the color of them," Bill replied in a trice. "Besides I made him, so I know. Be sure and close all the doors and windows. He hates open windows. He likes to go through walls. You might have a couple of chains handy for him to clank, too. I couldn't find a chain for him anywhere. All the chain stores were closed."

"Too bad I'm not married. I'd give him my old ball-and-chain," wisecracked Lili with her fortuitously inimitable humor.

With that Bill hung up. Who wouldn't?

(What will the ghost be like? And how is Perri getting along? Will Lili be able to rescue him from the Eagle's lair—if that's where he is? Stick around, kiddo, the drinks are on the house.)

Now it begins to look as if all those Mexican divorce decrees will be outlawed. Several more or less eminent jurists of late have held that Mexican divorces are not valid in California.

The proposition has a lot of screen stars worried for fear that if such decisions are upheld they'll be unwitting bigamists.

"Bigamists" ain't the half of it. Some of them will be quintuplets!

**HOLLYWOOD NOTE:** Buddy de Sylva, quondam song-writer and present producer, bought a new song for his latest production after hearing it for the first time over long distance phone from New York. The song was composed by Walter Samuels, and de Sylva wrote the lyrics as he listened to the melody over the phone.

That sounds like the best idea yet for listening to modern songs. If the composer pays the phone bill.

It's so simple to hang up.

A newspaper article states that the Bureau of Internal Revenue (you know—that's the department that finds fault with your income tax) has assessed Anna May Wong an additional \$880.00 on her 1932 income. How the B. I. R. got on to this so soon is beyond me. I had an impression they were just catching up with World War incomes.

Miss Wong has petitioned the Board of Tax Appeals for a redetermination of the tax. She charges that the B. I. R. (it's a cold day today) made some errors, "chiefly in discounting travel, costume, and other vaudeville expenses."

**THE MACARONI BOWL**, by the Shovel Boys (they dish it out) \* \* \* Leo Carrillo just hired a steam shovel. He's not planning to join the Shovel Boys—he merely wants to put his ranch back in place again. The last session of "California Dew" washed one end of it right up onto t'other. Washed out several of Leo's cherished plants, too. \* \* \* Shirley Temple gave a party for the kids of all the prominent motion picture people. Heading the list was Louella O. Parsons' daughter, Harriet. (P. S. Said little gal has been graduated from Wellesley for some few years.) \* \* \* Helen Ferguson just left by plane for New York to greet Fay Wray and bring her back into the fold. Fay has been in England these many moons and will be received with open arms—if she hasn't acquired an English accent. \* \* \*

Skeet shooting is become more and more a popular sport with the stars. In case you never shot an any defenseless little skeets, I'll explain that the game is a complicated method of shooting at clay "pigeons," or little clay ash-trays that whiz through the air at a hundred feet a second. It's an infinitely more humane pastime than shooting live birds. There are several skeet shooting ranges not far from Hollywood, and these are meccas of the cinemalites. Last month a Motion Picture Skeet Tournament attracted a big crowd at the Santa Monica Gun Club. Fred Stone donated all the trophies, most of them beautiful table pieces of hand-wrought art iron, similar to pewter. \* \* \* Clark Gable won the Actors' second prize, in the

face of a dozen cameras clicking every time he shot, so don't let anyone tell you he's a sissy. \* \* \* Jack Holt did all right for himself, too. \* \* \* Buster Collier, Jr., was there, with his pretty new wife parked on the sidelines. \* \* \* Jimmy Gleason was shooting wild, but not with a gun. He's a miniature camera fan, and he kept popping up in the darndest places with that little Contax of his, now lying on the ground for a weird angle, and next shooting from the roof of the clubhouse. In his spare moments he was doing gags for the news reels. \* \* \* Wendy Barrie came by to say hello, and got photographed with everybody but the clay pigeons. \* \* \* Peter Lorre showed up with some friends, and an enterprising publicity man got the bug to photograph Peter with all the paraphernalia. Lorre had never shot a gun in his life and was the unhappiest looking man you ever saw. He held the shotgun gingerly between two fingers. \* \* \* Bob Montgomery and Roger Pryor are skeet shooting enthusiasts, but weren't in the Motion Picture Meet. Even Jackie Cooper goes in for the sport.

Frances Dee and Joel McCrea have an honest-to-gosh ranch way out in the sticks, with herds of cattle and all the trimmings, and Joel even gets up early and helps his cow-hands herd the big lumbering beasts around. Such ambition. Incidentally the McCrea-Dee offspring is about as cute a baby as you can imagine. \* \* \* The four Westmore boys, Perc, Ernie, Monty and Wally, motion picture beauty specialists deluxe, have made their talents available to the general public. Their huge beauty salon is about the finest thing of its kind in existence. Their recent gala opening had all the aspects of a big Hollywood premiere. All the stars that could do so, paid tribute to these boys, who have aided so materially in building up the screen glamour that characterizes these stars. Among those to do honor to the Westmores were Claudette Colbert, Fredric March, Charles Laughton, Joan Blondell, Lois Wilson, Una Merkel, Lyle Talbot, Anita Louise, Tom Brown, Alison Skipworth, Kay Francis, Virginia Sale and Warren William. \* \* \*

Ken Maynard, with Clara Mohr, just opened a Mexican Curio Shop on Sunset Boulevard. Besides "Tarzan," Ken's horse, there were a number of two-footed friends there to wish him luck. \* \* \* Raquel Torres and her sister Renee were right at home among the Spanish accents. \* \* \* Doug Montgomery and John Lodge came in to try on a few sombreros. \* \* \* Bill Gargan arrived with a big black mustache painted on that would have made a Mexican General turn green.

## SMALL POEM ABOUT THINGS

People  
That jump off a stoople  
Must be very people-  
Minded people.

R. THRITIS.

And now Mae West is no longer content to write and act in her own starring vehicles. She has a yearning to produce pictures on her own hook, if I may call it a hook. She wants to produce "indies" and star other people in 'em. At least she has what it takes to make 'em!

Heart Balm suits seem to have reached a new high around the Holly Woods in the last month or so. Every little gal with an easy-money itch that masquerades as a badly bent blood bellows is rushing forward in a welter of lawyers and trying to grab what she can before the pending anti-balm legislation goes through and effectively spikes this neat-but-not-bawdy little racket. Tough luck, gals—looks as if you'll have to go to work, if you have any idea what that is.

## FAMOUS FINALES

Let's take that last scene over. Miss Leading-light: it was so good it makes the rest of the picture look like a flop.





# Usage confirms approval

**M**ORE than a year has passed since National Motion Picture Studio Carbons were approved as a source of studio lighting for color photography. Subsequent usage has fully confirmed this original

approval. Carbon arcs have provided the principal illumination for the color sequences which have proved so popular with theatre patrons during the past year.



NOW COMES THE FIRST  
FULL COLOR FEATURE PICTURE

PHOTOGRAPHED UNDER  
CARBON ARC ILLUMINATION

A scene from Pioneer Pictures' "Becky Sharp," starring Miriam Hopkins and directed by Rouben Mamoulian.

"Becky Sharp" is the first full-length, all-Technicolor feature picture to be made. It was produced by Kenneth Maegowan. Photography by Ray Rennahan. Chief Electrician, W. A. Oettel. Produced at RKO-Pathé Studios.

*Use* **NATIONAL MOTION PICTURE STUDIO CARBONS**  
for all studio photography, **BLACK** and **WHITE** as well as  
**COLOR**. They duplicate the photographic effects of daylight.

**NATIONAL CARBON COMPANY, INC.**

Carbon Sales Division, Cleveland, Ohio

Unit of Union Carbide **UCC** and Carban Corporation

Branch Sales Offices ♦ New York ♦ Pittsburgh ♦ Chicago ♦ San Francisco



# Preferred...

Leading Cinematographers the World Over Prefer the MITCHELL Sound Camera Because of its Dependability, Precision and Ease of Operation.



## MITCHELL CAMERA CORPORATION

665 N. ROBERTSON BOULEVARD  
WEST HOLLYWOOD, CALIF.

Cable Address "MITCAMCO"

Phone OXford 1051

### FOREIGN AGENCIES

Claud C. Carter,  
Sydney, Australia  
John H. Taylor,  
London, N. W. 1, England

D. Nagase & Co., Ltd.,  
Osaka, Japan

Bombay Radio Co., Ltd.,  
Bombay, India  
Arminio Conti,  
Rome, Italy



# INTERNATIONAL PHOTOGRAPHER

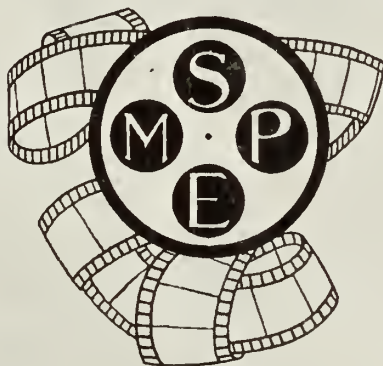
HOLLYWOOD

FIFTEENTH YEAR

JUNE, 1935

VOL. 7  
No. 5

## SOCIETY OF MOTION PICTURE ENGINEERS



DRAWN BY JOHN CORYDON HILL

Spring Convention, S. M. P. E., Hollywood, 1935

5 CENTS  
A COPY

MOTION PICTURE ARTS AND CRAFTS



REG. U. S. PAT. OFF.

## PANCHROMATIC NEGATIVE

COMBINES CORRECT COLOR BALANCE —  
DESIRED CONTRAST — FINENESS OF GRAIN  
— SAFE DEGREE OF LATITUDE AND  
SPEED. THESE ARE THE CHARACTERISTICS  
WHICH ARE INFLUENCING CAMERAMEN  
TO ADOPT IT AS A STANDARD.

DU PONT FILM MANUFACTURING CORPORATION

35 WEST 45<sup>TH</sup> STREET  
NEW YORK CITY

PLANT . . . PARLIN, N. J.

SMITH & ALLER LTD.

6656 . . SANTA MONICA BLVD.  
HOLLYWOOD, CAL.

THE  TRADE MARK HAS NEVER BEEN PLACED ON AN INFERIOR PRODUCT



# *Our Bouquet of Welcome to the S. M. P. E.*



*After a winter of abundant rains Southern California dons her most beautiful attire to welcome the S. M. P. E. pilgrims from across the Great Divide and among her most exquisite adornments are the Yuccas. Harry Blanc photographs this beautiful example of yucca, of the valley variety—so poetically described by the Latins as “candles of the Lord.”*

# INTERNATIONAL PHOTOGRAPHER

MOTION PICTURE ARTS AND CRAFTS

Vol. 7

HOLLYWOOD, JUNE, 1935

No. 5

SILAS EDGAR SNYDER, *Editor-in-Chief*

EARL THEISEN and CHARLES FELSTEAD, *Associate Editors*

LEWIS W. PHYSIOC, FRED WESTERBERG, *Technical Editors*

JOHN CORYDON HILL, *Art Editor*

HELEN BOYCE, *Business Manager*

A Monthly Publication Dedicated to the Advancement of Cinematography in All Its Branches; Professional and Amateur; Photography; Laboratory and Processing. Film Editing, Sound Recording, Projection, Pictorialists.

## CONTENTS

Front Cover Still by John Corydon Hill

THE CRADLE OF THE CINEMA IN THE WEST - - - -	1
<i>Messrs. Enrique Vallejo, Lewis W. Physioc, J. Fuqua</i>	
A NEW FIELD FOR PHOTOGRAPHY—STILL AND MOVIE -	3
<i>By R. E. Riesland</i>	
MAKING THE MOST OF EXPOSURE - - - - -	4
<i>By Herbert McKay (Part I.)</i>	
MOTION PICTURE SOUND RECORDING, CHAPTER XIX -	6
<i>By Charles Felstead</i>	
THE LOW-DOWN ON PRESS PHOTOGRAPHY - - - -	8
<i>By Karl Barleben, Jr., F.R.P.S.</i>	
MINIATURE CAMERA PHOTOGRAPHY - - - - -	10
<i>By Augustus Wolfman</i>	
"FROM SCRIPT TO SCREEN" - - - - -	12
<i>By a Cameraman</i>	
RECENT PHOTOGRAPH AND SOUND PATENTS - - -	13
<i>By Attorney Robert Fulwider</i>	
DETAIL IN TELEVISION AND MOTION PICTURES - -	14
<i>By Harry B. Lubcke</i>	
S. M. P. E.—THE POWER BEHIND THE PRODUCTION FORCES OF THE CINEMA - - - - -	16 & 17
<i>(Excerpts from S. M. P. E. Bulletin)</i>	
AN AMERICAN CAMERAMAN IN AMERICAN STUDIOS -	20
<i>By Ralph Hammeras</i>	
MOTION PICTURE STATISTICS TO DATE - - - - -	26
<i>Department of Commerce</i>	
CANDID M. P. CAMERAMEN - - - - -	28
<i>By Herbert Aller</i>	
CLASSIFIED - - - - -	30
CALIFORNIA PACIFIC INTERNATIONAL EXPOSITION -	31
BELL & HOWELL ANNOUNCES- - - - -	31
CINEMACARONI - - - - -	32
<i>By Bob Tobey</i>	

Entered as second class matter Sept. 30, 1930, at the Post Office at Los Angeles, California, under the act of March 3, 1879.

Copyright 1934 by Local 659, I. A. T. S. E. and M. P. M. O. of the United States and Canada

Office of publication, 1605 North Cahuenga Avenue, Hollywood, California  
Gladstone 3235

James J. Finn, 1 West 47th St., New York, Eastern Representative  
McGill's, 179 and 218 Elizabeth St., Melbourne, Australian and New Zealand agents.  
Subscription Rates—United States and Canada, \$2 a year. Single copies, 25 cents.

This Magazine represents the entire personnel of photographers now engaged in professional production of motion pictures in the United States and Canada. Thus THE INTERNATIONAL PHOTOGRAPHER becomes the voice of the Entire Craft, covering a field that reaches from coast to coast across North America.

Printed in the U. S. A. at Hollywood, California



\$2.00

The International Photographer announces a plan of betterment and expansion and this is the last call for subscriptions at the prevailing rate, \$2.00 per year.

The new subscription rate will be announced within ninety days, which will give prospective subscribers plenty of time to get on the mailing lists before the new rate takes effect.

The proposed program of betterment and expansion will increase the use-value of every department of the magazine to subscribers as well as to advertisers.

Watch for the coming announcement!

... NOW ...

\$2.00

Per Year





# A New Field For Photography—Still and Movie

By R. E. RIESLAND

**I**N the spring of 1933 it was our misfortune, or perhaps it was fortune, to become part of an American colony in Panama. Owing to dishonesty of the promoters, we landed in the heart of the jungles, amidst natives and Indians, without a cent and with no knowledge of the language.

Our original party consisted of my brother-in-law and his wife, my family, myself, wife and two sons, ages four and six years. My brother-in-law and his wife had purchased land and took up their residence thereon, while my family and I were thrown upon our own resources. With a few dollars we were able to get together, by selling surplus bedding, household supplies, clothing, etc., we established a small store and started trading with the natives and later with the Indians. Our many experiences would make a long story in itself, but as I desire in this letter to tell of the great possibilities of motion picture taking open to the lovers of the art, I will postpone our tale of tropical merchandising.

Panama has been, since the discovery of America, the rendezvous of all treasure seekers from the early Spanish Conquistadores to the modern, scientifically equipped treasure hunter. Hundreds of millions have been taken from this treasure house of the world and its neighboring countries, all of which was at one time stored in Panama and much of which still lies hidden by pirates, highwaymen and rightful owners who buried their wealth to hide it from robbers of one kind or another.

Great as was, and still is, this golden wealth, there is here a still greater wealth awaiting the lover of motion picture photography. The district of the Canal Zone and its cities offer one an almost endless source of inspiration and one could spend months without exhausting its possibilities, but to us of the "want something different" school, the Canal Zone and neighboring territory offers smaller inducements.

Everyone who has traveled that way has taken snaps of nearly all its possibilities, but how many have been privileged to enter the mountain Indians' own country! What a treasure would be a movie scene of the Indians' sacred Balsa Dance! What a worth while possession, a movie of an Indian house moving scene! What a change from the usual to get a few reels of Indian Hunta (working bee)!

What strange sights would be recalled, strange odors brought back to one's nostrils by a few feet of film showing an Indian family at meal time! In fact the whole country, the people and the life are so different and unusual that it gives one a thrill even to think of getting such exclusive shots into a moving picture.

Imagine close-ups of excavating the ancient Indian graves, furnishing authentic proof of the wonderful urns and vases of the inexhaustible store of gold possessed by this Indian civilization long since passed! How interesting to exhibit movies of yourself in Captain Morgan's old corral; of a dinner scene with your party regaling itself on a menu embracing wild zhino (wild pig), venison, turkey, mountain hen, parrot, monkey, iguana and other native game; of natives felling those high wine



Where pirates bury their swag.

palms and making the queer wine of the tropics, to say nothing of the beautiful flora and insect life, of great tropical trees fairly breaking under their loads of parrots and orchids of countless hues. But why continue?

For many months we were unable to contact the Indians, but at last through the misfortune of a poor Indian who was bitten by a tropical snake and whom we were able to save by prompt action, we made friends and later by the same methods extended this friendliness until it included a large part of the inhabitants. Our home became a rendezvous for the Indians when they came into the valley and I became a blood brother. My wife and sons were likewise taken into their confidence and we were told weird and amazing tales of great ancient cities, houses of copper, great caves, a race of dwarfs, vast cemeteries containing countless graves with many stone markers and tales also of buried gold of pirate days. Investigation from many sources helped us to substantiate these stories.

Without funds and with only a little old kodak and a few films I at last started for the mysterious mountains. Leaving my family in care of an adopted son (a half-breed) I started my explorations. An Indian guide and a native friend were my companions. Forty miles over what was called a trail brought us to two long abandoned cemeteries, each three to five hundred feet in diameter and circled by large stone markers three to seven feet high. These markers were well made from a hard granite-like rock and must have been hewn, as they showed evidence of having been polished at one time.

Nearby we found the almost obliterated sites of two ancient cities of some size. The country for many miles was dotted with great graves, twenty to fifty feet in diameter and all covered with great stones, many of which were round and must have been hand hewn as no stone of like nature was to be found nearby. Indians of the district showed me countless golden objects weighing from a fraction of an ounce to many pounds, all of which they said they had gotten from ancient graves. I am positive that this is the site of a great ancient civilization of greater antiquity than the Mayan or other known races of America.

In this district I saw one great grave from which three native brothers are reputed to have taken six hundred and forty pounds of golden relics which were taken from twenty-seven great urns or vases. I did not see the gold, but did see the vases which were of wonderful workmanship. I was later told by Chinese merchants that they had purchased the gold for a sum of three hundred thousand dollars, a pure steal, if the Chinese told the truth.

Having no proper tools and little time I did not open any graves as they are very hard to dig, the dirt being so well packed that it takes a crew of several men with picks and bars a week or more to open one. I did take several pictures but as I was delayed in getting them developed they were spoiled by mold. That these graves

(Turn to Page 21)

# MAKING THE MOST OF EXPOSURE

By HERBERT C. MCKAY

Reprinted from the American Annual of Photography, 1935, by special permission of American Photographic Publishing Co.

## PART I

**I**T is difficult to overestimate the importance of exposure. Not only is correct exposure a vital factor in making a good negative, it is practically the only phase of technique over which the photographer has any control. Lighting and posing lie well within the field of esthetics, while emulsion characteristics are fixed by the manufacturer and the process of development has, fortunately, been highly mechanized.

Sensitive materials are available in abundant variety, yet so fully standardized that compensation for variability of sensitivity is rarely, if ever, necessary except when changing from one emulsion type to another. Formulas are available which enable us to secure the best possible results by developing according to a time and temperature chart. By virtue of this standardization and mechanization, a great amount of drudgery has been eliminated, leaving the mind of the photographer free to cope with the problems of individuality in the use of his medium.

The mechanization of exposure is to be desired, but not to a degree which removes it entirely from the control of the photographer, because the correct exposure is not necessarily the desirable one. Certainly, however a *knowledge* of the correct exposure is vital to success in making any negative.

**WHAT EXPOSURE IS AND WHAT IT DOES.**—Exposure is the act of permitting light to fall upon the sensitive surface of a plate or film in such a manner that the image of the scene before the lens may be faithfully recorded upon the sensitive surface. This much is common knowledge, but until we have a clear conception of the elementary mechanics of the light action it will be difficult to appreciate the importance of knowing the correct exposure to give. While the reaction is fundamentally a photo-chemical one, we will assume a diagrammatic mechanical interpretation for the purpose of explaining the fundamental phenomena of photographic exposure.

It must be thoroughly understood that, for the purpose of this elementary explanation, facts will be dealt with broadly, and that the explanation given does not, from a strictly technical point of view, exactly coincide in every particular with existing facts! Technical readers will appreciate the departures from fact, while non-technical readers need not give any consideration to this, because the statements as made will serve to give a mental image of what takes place and will suggest how the knowledge may be utilized in securing better results when making photographs of any kind.

The sensitive material used in photography is known as the emulsion. Whether it is coated upon celluloid to make films, upon glass to make plates, or upon paper for use when enlarging or printing, the fundamental characteristics are not radically changed. The emulsion is essentially a mixture of silver bromide and gelatine. The gelatine used is the same substance used for making candy, desserts and other foods, but in a more highly refined form. It is curious that certain chemicals naturally found in the gelatine have a profound effect in making the emulsion more sensitive to light than is the silver bromide alone.

The emulsion is extremely thin, but the grains of silver bromide are so infinitesimally small that the emulsion is actually a stratum of material thickness in which there are suspended many layers of silver bromide grains. Of course, these are not arranged in distinct layers: they are scattered throughout the emulsion in a naturally accidental pattern. For the purpose of explanation, however, we shall make use of a purely imaginary emulsion in which there are ten layers of sensitive grains, all uniform in size and arranged in perfect symmetry (Fig. 1). We shall assume, moreover, that, when light falls upon any grain, it will immediately turn black (without the aid of development). We shall assume that no grain will be in any way affected until the grain immediately above it has become fully blackened, so that the light effect passes in distinct steps from one layer to another. Finally we shall ignore the decreasing proportionate effect of exposures of high and low intensities. We are concerned with building a skele-

ton of essential facts. When it is complete we can clothe it with the flesh of actual conditions, but we must always remember how the hidden mechanism works. These explanatory examples serve only to illustrate the essential facts of exposure and are not necessarily true to fact in details.

In order to expose the emulsion, we must assume a light unit. This unit is of such value that it will pass into and completely blacken just one of the sensitive grains in the top or first layer of the emulsion. Two units of light will blacken one grain, pass into and just blacken the second grain and so forth. A fractional unit will not have any effect at all (in our demonstration emulsion).

If our entire emulsion is exposed to light of one unit intensity, all of the grains in the top layer will turn black. We must assume that total opacity in the emulsion requires all ten layers to be blackened. Then, the blackening of this single layer will give a faint greyish tinge to the whole emulsion. If we use five units of light, five grain layers will be blackened and the emulsion will become medium grey. If we use ten units of light, the entire emulsion will be blackened and it will then be totally opaque (in actual practice it is difficult to produce a true opacity by exposing the emulsion and then developing it, but it is easy to produce a depth of tone which is opaque as far as practical printing conditions are concerned.)

Having established an experimental emulsion, a definite, experimental light unit, and their basic reactions, we are ready to learn what happens during exposure.

**NORMAL EXPOSURE.**—Let us assume that the experimental emulsion is divided into ten equal and adjacent areas. These areas are exposed to uniformly increasing light. The first section receives one unit, the next two units, and so on until the tenth section receives ten units of light, which in this example is maximum intensity. In each of the ten areas the grain layers will be blackened to a depth corresponding to the light intensity which fell upon that area, one layer being black-

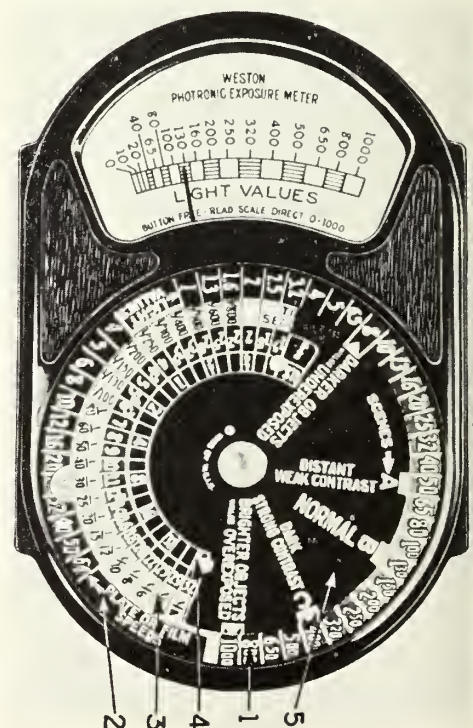


Figure 9

Please mention The International Photographer when corresponding with advertisers.



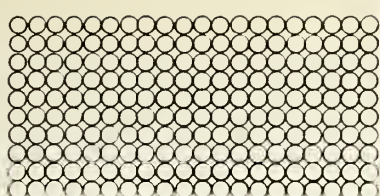


FIG. 1

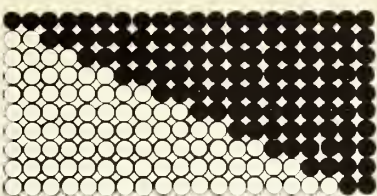


FIG. 2

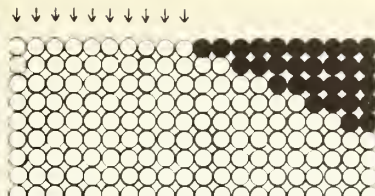


FIG. 3



FIG. 4

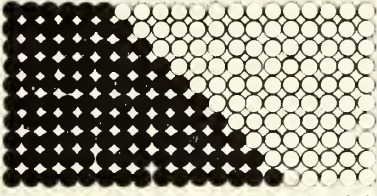


FIG. 5

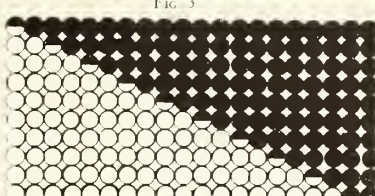


FIG. 6

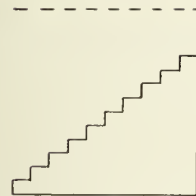


FIG. 7A

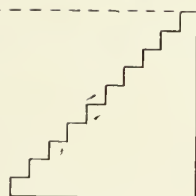


FIG. 7B

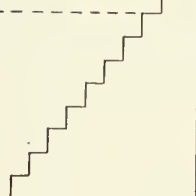


FIG. 7C

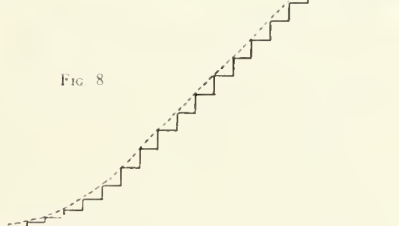


FIG. 8

ened for each unit of light intensity. The emulsion strip will then exhibit ten degrees of greyness from a faint tint to full opacity, the change from section to section being uniform. This we may regard as normal exposure because each one of the light values has been recorded in a degree proportionate to its intensity and because the entire range of light intensities has been so recorded (Fig. 2).

In practical photography a similar reaction is encountered: different intensities of light, falling on different portions of the film or plate, result in areas of different densities or degrees of greyness. The principal difference is that in actual photography the amount of difference in densities is less where overexposure and underexposure have occurred. Another difference is that in actual photography we have at our disposal upwards of one hundred tones instead of the ten used in our experimental emulsion.

**UNDEREXPOSURE.**—For this experiment we need ten light intensities, five of which are less than one unit each and five of which have values of one, two, three, four and five units each. Each of the ten acts upon one of the ten different areas of the emulsion. As it requires one full unit to affect an entire layer of the emulsion in any one area, the five intensities of light which are less than a full unit will have very little effect upon the emulsion—not enough to blacken any of the grains. The remaining five intensities will affect the emulsion proportionately to their strength, the five-unit light blackening the five topmost layers (Fig. 3). In no area will any of the five bottom layers be at all affected. The entire strip shows half of the areas practically transparent, the other half showing a range of tones varying from faint grey to medium grey, with no heavy densities. This is the effect of underexposure under actual conditions. Weak lights, such as the shadow sides of objects and other deep shadows, have practically no effect upon the emulsion. Consequently these portions of the film are without any usable negative image. No amount of development or intensification can put the image there, because it has not been recorded by the light.

**OVEREXPOSURE.**—In this case we make use of a series of ten light intensities ranging from six units to fifteen units, although ten units will blacken the emulsion throughout. The emulsion is again exposed in a series of ten adjacent areas. In areas one to five respectively, layers six, seven, eight, nine and ten mark the limits of blackening. The areas six to ten will all be fully blackened. The entire strip will show the first half ranging from medium grey to full opacity, with all of the second half fully opaque (Fig. 4). This is the effect of overexposure. In actual practice such a photograph will have even the deepest shadows grey and lacking in richness. Highlights tend to be all of the same tone, obliterating delicate detail (this assumes normal development, as will be explained later). The common faults, underexposure and overexposure, which we have just discussed, are well known. There are other factors of exposure, however, which are not so well understood and which have a profound effect upon the final photograph.

**EMULSION LATITUDE.**—There are a great many amateur photographers who are familiar with the term "emulsion lati-

tude," but who obviously do not fully appreciate the significance of it. We might define emulsion latitude as that range of tones which the emulsion will faithfully reproduce. Under that definition our experimental emulsion would have a latitude of ten degrees, *i. e.*, it would faithfully reproduce ten intensities of light in the form of ten different degrees of greyness or density. Emulsion latitude is distinctly not the ability to reproduce correctly the tonal range of the original, *unless* the total intensity range of the original is less than the sensitivity range of the emulsion. Even less is latitude some magical property which enables the emulsion automatically to compensate for the errors of underexposure and overexposure.

For example, in making a photograph of a square of grey paper fixed in the center of a larger square of slightly darker grey paper, we could conceivably secure faithful tonal reproduction with an exposure of one-tenth second or with one of a full second, because there is practically no tonal range in the original. In our test emulsion, for example, if the two tones of grey represent a difference of one unit intensity, we could secure faithful reproduction with any of these pairs of layers: 1 and 2; 2 and 3; 3 and 4; 4 and 5; 5 and 6; 6 and 7; 7 and 8; 8 and 9; 9 and 10.

Assuming that in actual practice we have an emulsion capable of reproducing tones in the ratio of one to one hundred, upon which a photograph is to be made. As the brightness of the sky is two hundred times that of the deepest shadow there is no exposure latitude at all. In fact, the sky will be overexposed; the shadows will be underexposed, or (as is most common) both conditions will be present at once!

What can our experimental emulsion teach us about emulsion latitude?

We have seen that when our light has an extreme range of five units of intensity, we can reproduce the original scale by allowing the light of one unit intensity to blacken only the top layer. In this case, throughout the entire emulsion, the six bottom layers will be unaffected. This was the case in the underexposure example, but the present case differs in that the weakest light intensity has produced its definite effect.

If instead of using a light intensity range from one to five, we make use of one which ranges from six to ten, we still have the same *proportionate* tonal range in the original. In this case the top five layers will be blackened throughout the emulsion, while areas six to ten will increase in density, the tenth one being opaque. The proportionate blackening is identical in both cases, so that, with different exposures, we faithfully reproduce the tonal value scale of the original.

This represents the common conception of latitude, the one which has caused too many amateurs to believe that exposure is a problem of no importance, because the film latitude is supposed to compensate errors of exposure. In our example we found that we could use a maximum intensity of five units or one of ten units, and secure the desired result with either one of these because in both cases a total range of only five units—1 to 5 or 6 to 10—was used, both of which lie well future. Slipshod methods are a thing of the past. "Getting by" will not do. Things are getting, it will be seen, more and more

(Turn to Page 18)

## A Study of the Microphone

# Motion Picture Sound Recording

## The Condenser; Transmitter, Etc.

### Chapter XIX

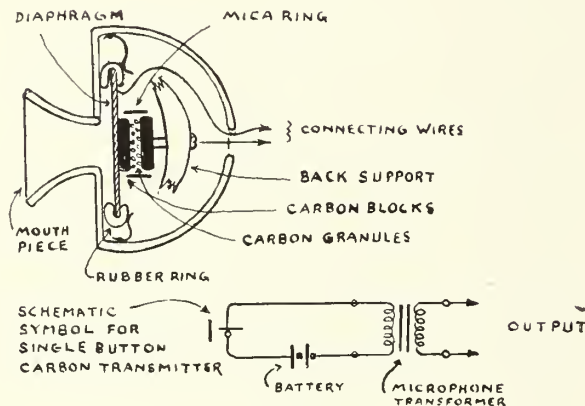


Fig. 1

(Figures No. 1 and No. 2, herewith appearing, are drawn in illustration of the text of Chapter XVIII, May, 1935, issue *International Photographer*.)

This chapter continues the discussion that was begun last month of the microphones used in motion picture sound recording. That first chapter on microphones described the single-button and double-button carbon microphones, or transmitters. We will resume now with a study of the functioning of the double-button transmitter. But first it must be repeated that neither of the carbon button transmitters is now employed for sound recording, their use being confined to the telephones and the public address system that provide intercommunication in the sound recording installation.

#### Operation of the Double-Button Microphone

The diaphragm of the double-button carbon microphone is always connected to a tap brought out at the exact electrical center of the primary winding of the microphone transformer, as shown in Figure 2; and the carbon electrodes are connected to the two ends of the winding. This places the resistance of each button across one-half of the transformer winding, thereby creating a balanced circuit that helps greatly to reduce the distortion produced by even harmonics.

A sound wave causes the microphone diaphragm to move backward and forward, thus alternately decreasing the pressure on the carbon granules in one chamber while increasing the pressure on the granules in the other chamber. Due to the accompanying variations in the resistances of the chambers, this alternately causes the current through one side of the transmitter and one side of the split winding of the transformer to decrease and the current through the other side of the transmitter and the other side of the transformer winding to increase. It is as though each side of the transmitter was a rheostat, the resistance of which is varied by the sound picked up.

These current changes in the transformer primary do

not oppose, but aid each other and add together, inducing a voltage in the secondary winding that is twice as great as it would be if only one cell of the transmitter were used.

As long as the resistances on each side of the microphone diaphragm remain constant and equal (as when no sound is being received), the steady battery current, and any fluctuation in that steady current, will not induce a voltage in the secondary of the transformer. This is because a steady current does not produce a flux in the transformer core, due to the fact that the currents flowing through the two halves of the primary winding are equal and in opposition, and so balance each other out. This prevents magnetic saturation of the core by the steady d-c. current, which could readily happen in the microphone circuit shown in Figure 1 if the transformer is not properly designed.

The value of the steady current flowing through the transmitter at all times is regulated, in the case of the double-button transmitter, by a series rheostat or potentiometer in the center lead of the transformer primary circuit. Usually this button current is adjusted to a value of about twenty-five milliamperes per button; but often with certain microphones satisfactory results can be obtained with currents as low as ten or fifteen milliamperes. A lower current is preferable because it is less likely to cause burning of the carbon granules due to arcing, and it is better for the delicate contact surfaces on the diaphragm.

As the microphone ages with use, its resistance increases, with a resultant loss of sensitiveness. As we have seen, the double-button transmitter is much less sensitive than the single-button transmitter, due mainly to the stretching of the diaphragm, and so at least one stage of audio-frequency amplification is necessary to bring the speech current produced by a double-button transmitter up to a useful value.

#### The Condenser Microphone

The condenser microphone, which is composed of a sound pick-up device called a *condenser transmitter* and a suitable amplifier, is a much later evolution than either of the two types of carbon transmitters. It was first described by Mr. E. C. Wentz, who developed it, in an article entitled "The Electrostatic Transmitter," published in the *Physical Review* for July, 1917. It produces speech current of the highest quality and is perhaps the most perfect microphone in use at the present time.

The condenser microphone has several disadvantages,

CINEX TESTING MACHINES

CINEX POLISHING MACHINES

**BARSAM-TOLLAR MECHANICAL WKS.**

7239 Santa Monica Blvd.

Phone GRanite 9707

Hollywood, California



though; and it is considerably more complicated in construction than the carbon transmitter and more difficult to maintain. Its sensitiveness is so much lower than even the double-button carbon transmitter that it is necessary to use one stage of audio amplification to bring it up to an approximation of the same level of energy output; and even then its output is about six decibels lower than that of the two-button carbon microphone, being still about minus thirty to forty db. There is a slight tube hiss from a condenser microphone, but it is not as annoying as the carbon hiss from a carbon microphone, and so, on the whole, there is far less back-ground noise present in the condenser microphone than in the carbon microphone.

The two-button microphone is still used wherever high quality is not essential because of the fact that it is more rugged and compact, less expensive, and that less batteries and associated equipment are needed with it than with the condenser microphone. The condenser microphone, however, is very durable and is not so easily affected by sudden temperature changes or mechanical shocks, so it can be moved about while in operation without creating noise. Also, there is no danger that it will "blast"; and it can be operated in any position, while the carbon microphone should be used only in an upright position.

The condenser transmitter operates on a principle that is entirely different from that of the carbon microphone. Instead of varying its resistance, and thereby altering the flow of current in the circuit in which it is connected, as does the carbon microphone, the condenser transmitter changes its capacity under the influence of the sound waves and in that way varies the flow of current into it from a source of steady e.m.f. incorporated in the circuit in which it is operating.

This change in current in the condenser circuit is so very minute that the only satisfactory way in which it can be employed is by causing it to produce a change in potential in the grid circuit of a vacuum tube. Without its associated amplifier, the condenser transmitter could not be used because, disregarding its extremely low electrical level, the impedance of the condenser transmitter would not match the impedance of the speech input equipment, being many thousands of times too great.

The amplifier thus serves to couple the condenser transmitter, which operates most efficiently into a circuit having an impedance in the neighborhood of fifty million ohms, to a 200-ohm transmission line. Actually, if only a single-stage amplifier is employed, the electrical level at the condenser transmitter is approximately six db. higher than the level at the output of the condenser transmitter amplifier—despite the gain the amplifier—due to the extreme difference in impedance of the two circuits.

The condenser-like pick-up device—the *condenser transmitter*—is sometimes known as the "head"; and the associated amplifier is called the *condenser transmitter amplifier*. These titles for the two parts of the microphone are abbreviated *CT* and *CTA* in general practice.

In the next chapter of this series, the internal construction of the condenser transmitter and the theory of its operation will be discussed; but first it will be well to describe briefly the external appearance of the various types

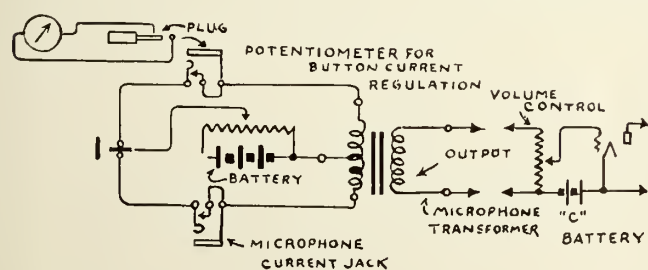


Figure 2—Schematic diagram of the double-button carbon microphone connection.

By  
**CHARLES  
FELSTEAD,**  
Associate  
Editor



of condenser microphones in use at the present time and the general details of their mechanical construction.

### *The Associated Equipment*

For reasons that have been mentioned and which will be explained more fully in the next chapter, it is necessary that the head of the condenser microphone be located close to its amplifier. The nearer they are together the better, the wires that connect them being usually less than six inches long. The several types of condenser microphones differ mainly in the number of stages of audio amplification employed in the amplifier. There are one-, two-, and three-stage *CTAs*.

The output level of a condenser microphone with a two-stage *CTA* is usually eighteen to twenty db. higher than the output level of a single-stage microphone, but otherwise there is little difference in them. All else being equal, a two-stage or three-stage microphone is the most satisfactory to use, because the greater amplification in the condenser microphone provides a higher electrical level for the speech current passing through the microphone cable.

Thus if there are any electrical disturbances picked up by the cable, the ratio of speech current to noise will be high; and since less amplification will be needed in the main line amplifier to obtain the electrical level required for recording, the disturbances will not be as much amplified as they would be if a single-stage microphone were employed.

In all three types of condenser microphones, the head is customarily held in a metal housing that is attached directly to the cylindrical or cubical metal case which contains the amplifier. If the microphone is of the suspension type, this amplifier case is equipped with a bail on the end farthest from the head for the purpose of attaching it to a microphone boom or other support.

The housing in which the condenser transmitter is mounted is pivoted so that it can be tipped to change the angle which it forms with the amplifier case; and a short length of shielded conductor connects it with the terminal plate on the amplifier. In the older types of condenser microphone, a length of shielded cable ending in a special locking plug was attached to the microphone amplifier; but in the newer microphones, a special plug is built right into the amplifier case on the end to which the bail is fastened. A similar but longer cable (the "microphone cable"), which has a braided metal shield over the conductors, an outside covering of rubber, and is equipped with plugs on both ends, connects the microphone with a *junction box* built into the wall of the sound stage.

### *The Junction Box*

This junction box is usually equipped with six jacks to accommodate the cables from six microphones; and it carries  
(Turn to Page 21)

# Candid Photography Means The Low-Down on Press Photography Minature Camera Photography

By KARL A. BARLEBEN, JR., F.R.P.S.



**V**OLUMES have been written, from time to time, on the subject of free-lance press photography, and indeed, even staff press photography, although the latter presents certain barriers which prevent most aspirants from crashing its gates, as it were. There is a certain glamour about press photography which inspires the amateur photographer to try his hand at it, and lately various books have appeared on the market which tend to even further this. One of the forerunners of books devoted to free-lance journalistic photography was undoubtedly "Cash From Your Camera," by Rossiter Snyder and this writer. "The Complete Press Photographer," by Bell, an English publication, was another of the original works which enjoyed great popularity. H. Rossiter Snyder has, during the past few years, written a number of interesting books on the subject. Jack Price, well-known newspaper photographer, wrote his "News Photography" a few years ago, and this book, while instructive, contained more true experiences of the author than other works of a similar nature. One of the most recent books on the subject is, "Candid Photography," by Kip Ross. For reasons outlined a little further along, this book will be of more practical value than the others in these modern times.

Of the thousands of youngsters with newspaper work as an ambition, very few ever come to realize their dream. However, Stanley Walker, former city editor of the New York Herald-Tribune, says in his book, "City Editor," that newspaper photography is becoming a more important factor in present-day newspaper practice as time goes on, and that those who diligently apply themselves to it can find fame as well as fortune in this field.

The new deal in press photography, to which Stanley Walker alludes in his book, is candid photography. Candid photography means miniature camera photography. Miniature camera photography means a certain definite technique which is practically unknown to the old-time press photographer. Today, newspaper work demands fresh, animated pictures. The papers are no longer content to print just pictures—they must be pictures-plus! The miniature camera, then, is the camera for newspaper photography of the future, and this is why it was previously stated that the book "Candid Photography" will be of such great interest to all those interested in this work.

There is a certain number of newspapers and news syndicates which even now use the miniature camera, but the fever has not spread to any great extent as yet—like all other things of revolutionary character, time is required before the majority see the true value. It is certain, however, that newspapers will, in the future, swing over to smaller cameras; in most cases, entirely.

American press photographers have always considered the 4x5 inch camera as standard. In Europe, it is interesting to note, negative sizes are considerably smaller, special favor seeming to be given to the 2 1/4 x 3 1/4 size. Victor Console, possibly one of the most famous press photographers in the world, predicts that the newspaper camera of the future will be no larger than a pack of cigarettes! Console, incidentally, is connected with one of the largest British newspapers, and in his time has photographed practically every crowned head and famous personage in Europe.

But enough of newspaper photography. It is lamentable but true, that the vast majority of amateur photographers haven't much of a chance to become definitely identified with newspaper work, at least as far as a staff position is concerned. This should be no discouragement, for the next best thing—free-lance photography—holds interesting possibilities for those who are willing to go into it with the proper equipment, including the mental temperament suited to it. While free-lance work may not hold the same glamour as newspaper photography, it still has enough snap in it to make things interesting.

Free-lance journalistic photography, as it is sometimes called, may be described as making photographs for publication purposes in either newspapers, magazines, or both. The subject-material may be of "hot" news value or of "feature" value. Hot news is best left to the staff cameraman except in rare cases

where the free-lance accidentally runs smack into it purely by accident. The free-lance finds his best field in feature pictures, for either newspapers or magazines. This work eliminates the time element, and may be used today or a week from today—and still be fresh and interesting. Hot news, on the other hand, must be used today or not at all. By tomorrow, it will have lost all of its value.

The vast majority of amateur photographers interested in free-lance work fail to consider that certain definite requirements are needed. To begin with, one must have a certain temperament, forcefulness, artistic sense, and more than average photographic technical ability. Next, one must have the proper equipment in order to be prepared for any and every requirement which may be made. Of the personal elements, little can be said, because each individual must analyze himself ruthlessly in order to determine his qualifications. As to the equipment, a few words may not be amiss.

As I have pointed out in various articles in the past, it is not so much the equipment; it's how the equipment is used that counts. In other words, masterly handling of a camera is of greater importance than just owning fine equipment. The expert photographer is he who manipulates his camera with utter lack of concern or effort. He subconsciously operates it, years of training and practice having taught his hands and fingers just where each adjustment is located by the sense of touch only. This is more important than it may seem, for only when the camera can be operated quickly and confidently can the photographer devote his entire attention to the subject being photographed. News photography does not permit time for calculations and adjustments which demand attention. Seconds count very often, and he who loses such precious seconds often fails to secure a picture at the critical moment.

It has been indicated that small cameras are the modern trend. This is something for the aspiring free-lance to keep in mind. A small negative size is ample, for pictures are almost always enlarged anyway, 8x10 prints being the usual thing. A fast lens is not necessary, although highly desirable, for today it is the unusual or difficult-to-obtain picture that earns the pay check, and fast lenses make it possible to secure exposures under extremely adverse lighting conditions. It is desirable to have the camera equipped with several different lenses which can be interchanged at all. Times will come when a wide-angle lens is necessary in order to get just what is wanted. On other occasions, a telephoto or long focus lens will be found indispensable. Additional lenses, though, are only desirable, and not absolutely necessary. The so-called standard or everyday lens should have a speed of at least f:4.5. Lens working at speeds of f:3.5, f:2.9, f:2, and even faster, are quite common in these times.

A miniature camera makes an ideal free-lance outfit, particularly if it is of the Leica type which permits the interchange of lenses, close-range, copy, and similar photographic activities. The compactness of such a camera can be best appreciated by those who have in the past carried about heavy cumbersome cameras.

The miniature camera has made all of us range finder conscious. A good range finder is of decided value to the free-lance worker, hence, such cameras make a strong impression upon the prospective purchaser. These cameras have special range finders built into them which couple with all lenses.

A reasonably appointed darkroom, equipped with a good

Phone GLadstone 4151

## HOLLYWOOD STATE BANK

The only Bank in the Industrial District of Hollywood  
under State Supervision

Santa Monica Boulevard at Highland Avenue





Rudolf Hoffmann, famous candid cameraman whose work appears in many of the finest publications in the United States, shown in action. Here is your opportunity to see the man behind the camera. These photographs made by the equally famous cameraman Ivan Dmitri. 1—"That's the angle I want—" 2—"Hold it!" 3—"Ah—perfect". 4—"Well satisfied with the results. Left and Right—Kip Ross, well-known candid cameraman does some monkey-shines in a mirror. Self portraits by Kip Ross. Right Center—Ivan Dmitri, famous candid cameraman broadcasting during a "Camera Program" in a New York City studio. Photoflash Leicaphoto by Karl A. Barleben, Jr. Right Center—Manuel Komroff, famous author of "Coronet", "I, The Tiger", "Two Thieves", and many other books and magazine stories, poses for the candid camera while visiting the International Leica Exhibition during its stay in the RCA Building, New York City in April. Komroff is an ardent Leica enthusiast and artist. Leicaphoto by Karl A. Barleben, Jr. (Ordinary ceiling lighting only. Summar f:2, 50 MM lens, wide open, shutter speed: 1/8th second, camera hand-held, DuPont Superior film.)

enlarger, will be of great value. Things should be arranged for speedy work, should the demand arise. Accessories such as a flash gun, etc., are of course considered as indispensable units belonging to the camera.

Assuming that the beginner is now completely equipped, he next seeks material to photograph. What to photograph! That is a question, in fact the problem where the majority stumble badly, if indeed, they do not trip and fall completely. One of the important personal elements required is the nose for news, the recognition of news or interest-values. This is something with which some are born. Others can acquire it in due course of time. Still others are never able to fully grasp it and make it work for them. A study of the daily newspapers and tabloids will do much to indicate what is interesting to the public and what isn't. The same thing applies to magazines. The alert free-lance must of necessity study his field constantly in order to keep abreast of things. It may be noticed that a picture that is accepted by one editor may be turned down by another. The free-lance must study the requirements of each market, for no two are exactly alike. Even when the exposure is being made, the free-lance should have some idea of the newspaper or magazine to which the picture will appeal.

There exist market lists which give the names and addresses of the newspapers and magazines in the country. Syndicates, too, are listed. All of these are markets for the free-lance, and it is a surprise to some to realize how much material used in these markets actually originates in the cameras of free-lance photographers. There is a decidedly good market for the free-lance who can deliver what is wanted. There is no chance at all for him who cannot produce what the editors want. Perfectly obvious, yet many will not realize this until it is too late, when they have expended their money and wasted time trying.

It is important to submit material to the right market, and at the right time. Snow pictures, for example, are a poor bet in the summer. Many things have to be considered, and if anything, this selection of markets is as important as the ability to turn out technically good prints. Only by a constant study of the market can one intelligently submit material which stands a chance of acceptance.

Ability along pictorial lines is quite necessary today. Remembering that the present-day public, to say nothing of editors, is no longer satisfied with just pictures, it behooves the free-lance to attend to the pictorial aspects of his photographs. Hot news, of course, does not expect composition, but feature pictures, made with more or less time and planning, must be not only story-telling, but pleasing to the eye as well. In short, it is not quite enough today to make a picture which tells a story. The story must be pleasingly told in the bargain. The rank and file of staff newspaper photographers are average photographers. Their knowledge of composition is practically

nil. Their technique, photographically, is just enough to permit them to "get by." The new era in press work will see drastic changes. The modern cameraman is expected to be up on composition and technique, for upon these two requirements rests the entire structure of press photography of the

(Turn to Page 22)



## CAMERA & PROP RENTALS

Camera Supply Co.  
1515 Cahuenga Blvd.  
Hollywood, Calif.

Ruddy Geraus, Manager  
Gladstone 2404

Nite Phone GLadstone 6583  
Cable Address — "CAMERAS"



## Late News of Dufaycolor

## Miniature Camera Photography

## Hot Weather Processing



Left: The Barker. Photographed on Neo-Persenso Film, developed in Metol-P-diamine-Glycin. Upper Right: Tommy. Exposure made on Neo-Persenso Film, developed in Metol-P-diamine-Glycin. Lower Right: Edward G. Robinson and wife at Warner Bros.' premier of his picture, "I Loved a Woman." Robinson's mother is seen in the foreground.

**L**ATE News on Dufaycolor In the April issue an article by Mr. Karl A. Barleben, Jr., F.R.P.S., on the new Dufaycolor process was included, in which this miniature camera authority listed salient facts about this process, such as speed formulas, etc., which were adhered to at that time. Many experimenters have taken to this process, and progress is fast. The speed is now regarded as 16 degrees Scheiner, for the best results—it was formerly rated at 17 to 19 degrees Scheiner. The Weston Universal exposure meter is set at a factor of 6. Many workers find the use of ammonia very annoying, so that the following formula is suggested to replace the former one containing ammonia, which was used for the first development:

Water	- - - - -	2,500 c.c.
Metol	- - - - -	16.25 grams
Hydroquinone	- - - - -	5.0 grams
Sodium Sulphite (anhydrous)	- - - - -	125.0 grams
Sodium Carbonate (anhydrous)	- - - - -	87.0 grams
Potassium Bromide	- - - - -	7.0 grams
Potassium Thiocyanate	- - - - -	22.5 grams

Dissolve the chemicals in the order given.

Developing Time: 3 to 4 minutes at 65 to 68 degrees F.

Less for over-exposure and more for under-exposure up to 7 minutes, the maximum contrast resulting from short development. This developer will keep in a tightly stoppered bottle.

At present the use of different filters under various conditions of illumination is still in the stage of experimentation. However, it is recommended when photographing open landscapes, or water scenes, in which case there usually exists abundant ultra-violet light, to employ either an aesculine or an ultra-violet filter to insure against excessive blue results. With Photoflash or Photoflood illumination, a Wratten 78-A filter can be employed, whereas the film may be used without a filter under white flame carbon arc light. Further information on the use of various filters with Dufaycolor film will undoubtedly be available in the future.

**An Item for Your Vacation List:** If you are looking forward to obviate having relatively unimportant things prevent you from getting the best results, then slip a pad of lens tissue, or a piece of clean soft chamois into your camera case. Even though you take pains to keep the lens capped whenever the camera is not being used, still dirt and smudges will manage to appear on the lens. In a pinch the photographer may resort to a clean handkerchief, but adherence to this practice may eventually cut down the efficiency of the lens. Optical glass is subject to becoming scratched when rubbed with ordinary materials, and continued use of plain cloths for this purpose will result in numerous minute scratches appearing on the lens. Lens tissue is the ideal expedient to employ for this purpose, a soft chamois also being applicable to this use.

**Blister on Prints:** This detriment does not occur often but is liable to crop up at times. Blisters on prints are usually caused by transferring the prints from the developer to a strong acid fixing bath without first rinsing them. The carbonate of the developer reacts with the acid in the fixing bath, releasing carbon dioxide gas, which causes the gelatine to swell and lift from the paper base in spots. Sudden changes in the temperature of the solutions may also give rise to blisters. By keeping

**35mm. Eastman or Dupont**

Fresh Gray Backed Negative

Price 2½c per Foot

for

AMATEURS or PROFESSIONALS

**KINEMA KRAFTS COMPANY**

6510 Selma Ave. Hollywood, Calif. GLadstone 0276



all the solutions at between 65-70 degrees F., and employing a rinse between the developer and fixing bath, this trouble can be avoided.

**Using the "Electric" Meter:** Many photographers will acquire a photoelectric exposure meter this summer so as not to miss any opportunities during the coming vacation. Undoubtedly these meters are extremely accurate in their ability to measure the actinic value of the light, but they are mechanical contraptions and cannot think. The owner usually assumes that it is only necessary to point the meter at the scene or object to be photographed and it will indicate the correct exposure.

In general the photoelectric meter covers a greater angle than that embraced by the usual photographic lens, so that the meter will take in a greater area in its reading than that which is to be photographed. Let us assume that the scene which we are photographing consists of a person in an open landscape, against a background which includes a large expanse of sky, and the exposure is to be such as to correctly reproduce the individual being photographed. When the meter is pointed at the latter it will include in its reading the large expanse of sky as well as the subject, and if the exposure indicated is given, the subject will be under-exposed. In such a case the proper procedure is either to go up close to the subject to take a reading, thereby cutting off much of the external influences affecting the meter, or to point the meter downward so as to include more foreground material and less of the bright sky.

Similarly in taking close-ups of an object, it is best to approach to the latter and take a reading of the shadow side to arrive at an exposure which will reproduce detail in the latter. It must be borne in mind at all times that the fact that the photoelectric meter is extremely accurate is not sufficient to obtain the best results. Thought must be applied to its use. Photographers new to the use of this type of meter usually blame the meter for poor results, whereas their technique in its use is incorrect.

While we are on the topic of meters we might as well stress a point in connection with the use of the visual type of meter. The photographer must wait a few seconds after placing the meter to the eye and before taking the reading to allow the eye to become accustomed to the dark interior of the meter. Especially is this true in the summer when photographing in bright sunny outdoors. Unless the iris of the eye by changing the size of the pupil, is allowed to compensate for the change from the bright sunshine to the dark interior of the meter before the latter is manipulated, a wrong reading will be taken. Although usually included in the instructions supplied with the meter, this point is overlooked many times.

**Prepared M. P. G. Developer:** Last month formulas for metol, paraphenylene-diamine, glycin developer were given, but there are many in our miniature camera clan whose lack of sufficient time or space makes necessary the use of prepared developers. Such photographers need not feel at a loss in the matter of trying this new type of formula, for a prepared developer containing the above three developing agents can be obtained. It is known as M. P. G., and is claimed to produce clear brilliant negatives full of shadow detail. Full details of this prepared developer can be obtained from the R. J. Fitzsimons Co., 75 Fifth Avenue, New York City.

**Weak Prints:** Metol-hydroquinone formulas are usually employed for paper developers, and if the solution is too cold (50 degrees F. or less) weak flat prints will be produced. The reason for this is that at 50 degrees F. hydroquinone ceases to act, so that the only developing agent affecting the paper is metol. The latter gives thin images full of detail whereas the hydroquinone gives density. The remedy is obviously to warm the developer to a temperature between 65 to 70 degrees F.,

## BY AUGUSTUS WOLFMAN



so that the hydroquinone could become active again. Temperature of the solution is important in the making of the prints, as well as in the preparation of negatives.

**Tips on Hot Weather Processing:** Many photographers whose summer vacation covers a considerable time adopt the practice of developing their negatives while on the trip. Unusual hot weather conditions may be encountered, and there may be occasions when the temperature of the water obtainable for the preparation of solutions is relatively high. When the temperature is 75 degrees F. or above trouble may be encountered such as fog, reticulation, etc.

In developing at temperatures from 75 to 85 degrees F. use any good developer but increase its strength so that it will develop the film in from three to four minutes at 85 degrees F. If development is carried beyond this point the film might become unduly swollen. Should a formula call for eight minutes development at 85 degrees F. double its strength and it will develop the film in four minutes. If the developer tends to give excessive fog at this temperature add a little potassium bromide.

After development rinse the film for not more than two or three seconds in water, and immerse it in the following hardening solution:

Potassium Chrome Alum	- - - - -	1 oz.
Water, to make	- - - - -	1 quart

The film is agitated when first placed in this solution and which is usually sufficient time to give maximum hardening. It is kept immersed in the latter for not less than three minutes. Films which have been treated with a chrome alum hardener should always be wiped carefully after washing, and previous to drying, otherwise a chromium scum may dry on the film and leave a stain which cannot be removed.

After leaving the hardening bath the film should be so hardened that the gelatin will not dissolve off in boiling water. It is now placed in the usual fixing bath until the unexposed emulsion has been dissolved away, and then washed. Above 85 degrees F. the development of miniature camera films is not recommended.

Some workers prefer the use of formalin as a hardening agent, in which case the film is hardened prior to its being placed in the developer. A 10 per cent solution of formalin is used, which is prepared by diluting commercial formalin (40 per cent solution of formaldehyde) 1 to 10 with water.

(Turn to Page 23)



"ArtReeves"

Announcing  
**VARIABLE AREA**  
Recording Equipment for the Producers who  
Do not have Laboratory Gamma Control

Hollywood  
**MOTION PICTURE EQUIPMENT CO. LTD.**  
645 NORTH MARTEL AVE. CABLE ADDRESS ARTREEVES  
HOLLYWOOD, CALIFORNIA, U.S.A.



## "FROM SCRIPT TO SCREEN"

(A Technician's Comment on Lewis W. Physioc's  
New Book)

Every book is the result of some reason or incentive—fame, fortune or obsession. In this instance the reason was in the contemplation of the author's own experience and the observations of many of his associates.

When we were developing along with the industry, there were many occasions when we needed a bit of information and had to dig through a lot of material before finding what we wanted. This was not surprising, for after the birth of the new art it developed so rapidly that no chance was allowed for classifying its several branches into a well defined school. The many problems were the result of momentary inspiration and the solutions were necessarily a matter of experimentation. Because of this fact, the industry was tolerant of experimentation, trial and error and guess-work.

The situation is now entirely different: We are in the midst of a well defined, highly developed art—one is either a director, cameraman, sound expert or he is not. The industry is no longer interested in educating one of its technicians by the old trial and error system.

During this vast accumulation of experience many well defined questions have repeatedly arisen. The matter of their answers represents the curriculum of the study of the art. It is reasonable to suppose that such a dignified array of matter deserves the proper representation through

a text book: if not to aid the exponents of the various departments and those aspiring to such positions, at least to encourage the proper appreciation of the art.

This last consideration—appreciation—is significantly reflected in the fact that many colleges have added cinematographic divisions to their courses in art appreciation.

To be sure, there have been numerous books written, but so many developments have succeeded them as to make them obsolete.

Aside from the idea a general appreciation among fans and students, the attitude of many exponents of the art suggest that such a book might be of value to them. Inter-departmental workers attend lectures at the colleges and our own Academy of Motion Picture Arts and Sciences and The Society of Motion Picture Engineers to familiarize themselves with the problems of the associated departments. They reflect the undisputed fact that they can better perform their individual offices and make it easier for their associates by knowing what can and cannot be done.

And further, many foreign countries are exhibiting the ambitions to produce their own pictures for their own people. Not all are in a position to send their students to Hollywood for the proper training; and there is a limit to their draughting of our own talent. It is certain, therefore, they will find help in *From Script to Screen*.

### AROUND THE WORLD IN 80 MINUTES

"Around the World in 80 Minutes" is the title of a 16 mm. talking motion picture which the Dollar Lines is showing in various cities in clubs, schools, hotels, department stores and similar institutions to promote travel on its ships.

The picture is approximately three thousand feet long and takes eighty minutes to run; hence its name. It is being shown on Bell & Howell sound-on-film talking picture projectors with only two changes of reels. It is possible, when desired, to show this same length of footage with only one reel-change. Alois Havrilla is the narrator of the picture.

The use of the projector provided by the Dollar Lines for its Chicago office is typical of what is being done in other offices of the Lines to secure wide distribution of the picture.

The various sales representatives of the Chicago office arrange showings of the picture in advance in their respective territories to cover a certain pre-allotted time block. Each representative puts on the "show," operating the projector himself. During the past three months there has been scarcely a day when a program has not been given.

Although most of the representatives had never seen a motion picture projector before this promotional plan was inaugurated, it took only a short time for them to become acquainted with the operating procedure so as to put on excellent shows.

Sales results have been gratifying. The picture gives a graphic idea of the interesting scenes and experiences of a world trip via the Dollar Lines and cuts down sales resistance.

John Mescal is going to do a picture for Walter Wanger, Paramount release, after having startled the photographic profession with his extraordinary accomplishments on "The Bride of Frankenstein." By the way, John is the new golf champion of the cameramen this year.

Gil Warrenton is resting at his ranch after having finished two pictures for Liberty Productions.

Art Marion, distinguished still photographer, has gone to Lone Pine to shoot two Westerns for the Republic Pictures Corporation. The locale is at the site of highest and lowest point in the United States.

## We'll Pay Cash!

WE WANT IMMEDIATELY

Mitchell  
Akeley

Eymo  
Bell & Howell

De Brie  
Contax

Leica, and Similar Used Cameras

— Also —

LENSES, MOTORS, PARTS, AND CAMERA  
ACCESSORIES

What Have You To Offer?

Write or Wire Today

MOTION PICTURE CAMERA SUPPLY, INC.

723 7th Avenue

New York City



# RECENT PHOTOGRAPH AND SOUND PATENTS

By ROBERT FULWIDER

(Registered Patent Attorney)

Wilshire at La Brea, Los Angeles

1,996,731—Light Source for Recording Sound on Film. Stewart C. Whitman, Jackson Heights, N. Y.

1,996,732—Sound Recording Camera. Stewart C. Whitman, assignor to Whitman Sound Systems, Ltd., Dover, Del.

1,996,759—Film Handling Apparatus. W. D. Foster and F. D. Sweet, assignors to Kinatome Patents Corp., New York, N. Y.

1,996,768—Antidrag Developing Machine. Thomas Ingman of Los Angeles, Calif.

1,996,782—Film Magazine for Picture Projectors. William W. Wood, assignor to Visomatic Systems, Inc., New York.

1,996,868—Manufacture of Lenticular Film. Gerd Heymer, assignor to Agfa Ansco Corp.

1,996,928—Sensitized Photographic Element and Process of Making. Leopold Mannes and Leopold Godowsky, New York.

1,996,958—Method and Apparatus for Carrying the Length of Sound Records. Berthold Freund, of Berlin, Germany.

1,996,963—Picture Transmission and Reception System. Clinton Hough, assignor to Wired Radio, Inc. of New York.

1,997,024—Recording of Electrical Impulses. Percival Townsend, assignor to R. K. O. Corp.

1,997,088—Sound Gate. James Stewart assignor to R. C. A. Corp.

1,997,124—Film Projecting Apparatus. Lester Soman, assignor to Film Treatizer Corp., New York.

1,997,266—Film Movement. Gordon Pollock, Los Angeles, Calif.

1,997,269—Art of Treating Photographic Surfaces. Victor Stewart, assignor to Louis Solomon, New York.

1,997,300—Synchronized Talking Pictures System. Orlando Kellum, assignor to Syncro Sound Inc., Los Angeles, Calif.

1,997,321—Brake for Motion Picture Apparatus. Joseph Stoiber, assignor to Eastman Kodak Co.

1,997,325—Method and Apparatus for Duplicating Goffered Film. Fordyce Tuttle, assignor to Eastman Kodak Co.

1,997,328—Gate Construction for Motion Picture Machines. Otto Wittel, assignor to Eastman Kodak Co.

1,997,354—Combined Cinematograph Camera and Projector. Charles Wright, London, England.

1,997,409—Automatic Film Threading Motion Picture Machine. Russell May, assignor to R. C. A.

1,997,410—Motion Picture Machine. Wm. Doudon, assignor to R. C. A.

1,997,493—Color Photographs. Leopold Mannes & Leopold Godowsky, N. Y.

1,997,642—Cinematic Machine. Fred Kein, College Point, New York.

1,997,648—Color Cinematography. Humphey Murray and Douglas Spencer, London, England.

1,997,692—Recording Apparatus. Wm. Loudenback, assignor to Westinghouse Electric Co.

1,997,815—Talking Motion Picture Screen. Philip Edelman, Chicago, Illinois.

1,997,976—Film Having a Photographic Sound Record for Preparing Same. Axel Peterson, Copenhagen, Denmark.

1,998,054—Cinema Screen. John McBurney, assignor to E. I. DuPont de Nemour & Co., Wilmington, Del.

1,998,064—Sound Film Recording System. Walter Albersheim, assignor to Electrical Research Products, Inc.

1,998,154—Film Developing Method and Apparatus. Bruce Burns, assignor to Hughes Industries Co. Ltd.

1,998,584—Film Pack Construction. Wm. V. D. Kelley, assignor to Color-Photo, Inc., Los Angeles, Calif.

1,999,020—Fire Guard for Motion Picture Machines. George Reay, Chicago, Ill.

## ROY DAVIDGE FILM LABORATORIES

...

An Exclusive "Daily" Laboratory

...

Quality and Service

6701-6715 SANTA MONICA BOULEVARD  
GRanite 3108

# DETAIL IN TELEVISION AND MOTION PICTURES

By HARRY R. LUBCKE

(Director of Television of the Don Lee Broadcasting System)

One of the most frequent and most logical questions asked in connection with television is: "Will television reception ever equal the motion picture in smoothness of detail and beauty?"

The answer is "Yes." But why this is true, and upon what data it is based, is of interest to those engaged or interested in both industries.

Considering first the motion picture, we know that the detail perceived on the screen is dependent chiefly upon the illumination of the picture, the photographic grain of the film, and the mechanical precision of the recording and reproducing mechanisms used in the process. In the modern theatre the picture is well illuminated, and the grain of the film is hardly apparent. The precision of the mechanism, and particularly the projector, generally contribute such inaccuracies as are found.

The standard of performance established by the Projection Practice Committee of the Society of Motion Picture Engineers, and published in the March, 1934, issue of the Journal of that society, states:

"If the projector is in first-class condition, and the intermittent movement and the picture gate are properly adjusted, the picture jump should not exceed the values given in the following table (*one-third of one per cent of the picture height*) . . ."

Interpreting this specification in another way, it is seen that an otherwise perfect picture is blurred by an amount equal to one-third of one per cent, by a projector in first-class condition. This means, further, that an object, so small as to occupy only one-third of one per cent of the picture height, would be blurred into non-recognition.

This is a very commendable precision, however; a perfection of reproduction that is often unappreciated by the eye and beyond which it is therefore unnecessary to go. An object as small as the one mentioned is seldom noticed by the eye, or at least registered on the looker's consciousness, because the looker is occupied in discerning and enjoying the central figures, the action, and the story that is being told.

Viewing this precision from the television aspect, it is



obvious that any object, so small as to be wholly included within one scanning line may lose much of its identity. An image containing a number of scanning lines proportional to the precision previously stated would therefore be of the same clarity as the motion picture.

One scanning line is thus to be one-third of one per cent of the picture height. This is to say that the image is to contain three hundred lines (the reciprocal of one-third of one per cent).

This represents a precision that will soon be within the grasp of the television art, or, in any event, a degree of perfection that *will be attained*. The answer to the original question was thus correctly given.

In contrast to the motion picture, television equipment does not have an intermittent movement. This function is carried out by cathode to the ray tube, with its pencil of electrons, which is inertialess. In the televising of motion picture film the intermittent motion is usually omitted, since a uniform motion of the film coats in a superior way with the required scanning processes.

The television presentations of the present day are, of course, defective in other respects, often in ways which find a counterpart in the motion picture process. Proper composition of the scene televised, proper contrast, and a proper intensity range, conspire to produce results far superior to similar scenes televised in violation of certain requirements in these respects.

But this is another story that involves a whole new technique and must be left for a later date. Suffice it to conclude with data presented in answer to the more general question: "Will television ever equal the movies?"

## PRICE REDUCED ON CINE-KODAK, MODEL K

Here's news from Rochester that should be welcomed with open arms by amateur cinematographers—and those who would like to own a fine Cine-Kodak with the ultra f:1.9 lens but to date haven't been able to afford it.

The list price of the Cine-Kodak, Model K, formerly selling at \$152.50, has been reduced to \$112.50 without a carrying case and \$125.00 with the case. This \$27.50 price reduction, according to advice from the Eastman Kodak Company, has been made possible as the result of increased sales, with its attendant manufacturing economies.

Model K, with the f:3.5 lens will no longer be supplied, as the new price of the f:1.9 is practically the same as the f:3.5 model.

Cine-Kodak, Model K, with its f:1.9 lens justly deserves its great popularity in the 16 mm. field for its versatility, its adaptability to other lenses—wide angle and telephoto. Its simplicity plus excellent performance makes it a favorite among travelers, architects, business and professional men and is extensively used by professional cinematographers, who demand precision movie cameras for personal use, and others in every walk of life who desire the best in amateur movies in either monochrome or color.



In SAN FRANCISCO STOP at the

## Hotel Mayfair

626 Polk St., near Civic Center

100 Rooms

100 Baths

Single \$1.50

Double \$2.00

Special Rates for Permanent Guests

Operated by a Member of Local 659

DARK ROOM FACILITIES PROVIDED



## BELL & HOWELL ACTIVITIES

A 16 mm. motion picture was recently projected by one of the new 1000-watt Bell & Howell Filmo projectors before an audience of 4000 people in Constitution Hall, Washington, D. C., in connection with a lecture presented under the auspices of the National Geographic Society.

"We gave what we consider a most satisfactory projection," is the word that comes from the Society. "The distance of throw from booth to screen was 140 feet, and the picture was 'blown up' to a width of 22 feet. We asked our lecturer to make a comment on this from the platform, which was done; but in all probability most of those in the audience would not have known the difference from the customary projection of standard 35 mm. film."

Recently, too, in Chicago, in the big Simpson Theater of Field Museum, the same type of projector was used with outstanding results to show a 16 mm. film illustrating a lecture, "Modern Pioneering," given by Richard Finnie, F.R.G.S.

Until the development of the Bell & Howell 1000-watt 16 mm. projector, lecturers using motion pictures in connection with their platform appearances, were wont to consider it necessary to use 35 mm. film in the large auditoriums. Now they can use the smaller size film practically anywhere.

They can take their lecture films in 16 mm. width at much

less expense than that involved in making 35 mm. pictures, and have the assurance that they will not lose desirable engagements because of using 16 mm. film. However, when a picture has been taken on 35 mm. film it can be reduced to 16 mm. and used to advantage in this high-powered 16 mm. projector.

This new-type machine has a film capacity of 1600 feet. This means that a lecturer can "load" the projector, start it going, and it will run off film for an hour's continuous showing—just about enough for the average illustrated lecture—without the necessity of changing reels. An operator is not absolutely necessary.

These projectors are so light in weight as to be easily portable, and certain lecturers are already carrying one along on tour so as to be sure of securing good projection wherever they lecture.

Mr. Finnie made his "Modern Pioneering" picture, which he showed at Field Museum, on 16 mm. film. He had previously "shot" film for another lecture, "The Igloo Dwellers," in 35 mm. width and now has made a 16 mm. reduction print of this picture and, when he presents the "Igloo" lecture, uses this print on a high-powered 16 mm. projector that he carries with him. The weight of the 16 mm. film is much less burdensome for carrying than the 35 mm.

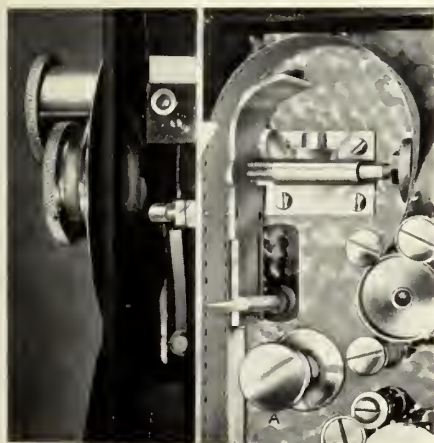
## CALIFORNIA PACIFIC INTERNATIONAL EXPOSITION

The California Pacific International Exposition which opens in San Diego, California, on May 29, celebrates four centuries of progress and achievement in the West, and marks a new era of prosperity so aptly expressed in such huge building programs as Boulder Dam, the Grand Coulee power and irrigation project, the San Francisco trans-bay bridges, the All-American Canal, and numerous other public and private works, totalling billions of dollars in cost.

This Exposition tells the story of mankind's restless urge toward achievement from the time the high-sterned galleons of Juan Rodriguez Cabrillo sailed into San Diego Bay and claimed Southern California for Spain, through the present, and gives a glimpse into what the future promises.

The Exposition grounds occupy 300 acres in beautiful Balboa Park, famous as one of the five most beautiful parks in the world. This park is the center-point of San Diego and covers an area of more than 1,400 acres. It is bounded on the West by Park Boulevard, on the East by Sixth Street, on the South by Date Street, and on the North by Upas Street.

In 1915, the Panama California Exposition was held in this same park. All of the permanent buildings of that Exposition, which are of Spanish Renaissance and Spanish Colonial design, are being utilized as exhibit palaces in this Exposition. Added to these are many new structures, bringing the total number of buildings to more than 100.



THE AKERS

*Featherweight*

**IS BUILT WITH PILOT-PIN REGISTRATION**

Designed to meet today's professional requirements, the AKERS 35MM FEATHER-WEIGHT offers portability, versatility, precision and performance far beyond the ordinary. A new illustrated bulletin will be mailed upon request.

*Visit the AKERS exhibit at the S. M. P. E. convention and investigate this outstanding achievement in cinematography.*

**AKERS CAMERA COMPANY, INC • 7414 SANTA MONICA BLVD • HOLLYWOOD**

# POWER BEHIND THE PRODUCTION

## THE S. M. P. E.—ITS AIMS AND ACCOMPLISHMENTS

The S. M. P. E. embraces a group of men who are united in the common purpose of securing advance in the science and art of motion pictures. Although these men are recruited from every part of the industry, from the laboratories of colleges and the big manufacturing firms, from studios, from theaters, and in fact from all places and all countries where the art of motion pictures is practiced, it has not been possible to bring news of the Society's work before every individual who should be interested.

In 1916, at the height of the World Crisis, the con-

fusion arising at home and abroad through want of co-operation and standardization prompted C. Francis Jenkins, inventor and scientist, to enlist the sympathy of a dozen manufacturers and their technicians to found a society which should have for its avowed purpose "advancement in the theory and practice of motion picture engineering and the allied arts and sciences, the standardization of the mechanism and practices employed therein and the dissemination of scientific knowledge by publication."

The S. M. P. E. was organized on July 24th, A. D. 1916, and within a year over a hundred men joined the

### SPRING, 1935, CONVENTION SOCIETY OF MOTION PICTURE ENGINEERS Hotel Roosevelt, Hollywood, Calif., May 20-24th, Incl. Officers and Committees in Charge Program and Facilities

W. C. Kunzmann, Convention Vice-President  
J. I. Crabtree, Editorial Vice-President  
J. O. Baker, Chairman, Papers Committee

#### Local Arrangements and Reception Committee

P. Mole, Chairman		
G. S. Mitchell	E. Huse	N. Levinson
W. J. Quinlan	K. F. Morgan	G. F. Rackett
J. A. Ball	W. C. Marcus	H. W. Moyse
C. W. Handley	E. C. Richardson	J. A. Dubray
R. H. McCullough	R. G. Linderman	F. E. James
		C. Dreher

#### Projection Committee

H. Griffin, Chairman  
R. H. McCullough  
K. F. Morgan  
Officers and Members of Los Angeles Local 150, I.A.T.S.E.

#### Studio and New Equipment Exhibit

O. F. Neu, Chairman  
H. Griffin  
P. Mole  
J. Frank, Jr.  
S. Harris

#### Banquet

W. C. Kunzmann, Chairman  
P. Mole  
G. S. Mitchell  
W. J. Quinlan  
G. F. Rackett  
E. Huse  
O. F. Neu

#### Publicity Committee

W. Whitmore, Chairman  
J. J. Finn  
F. H. Richardson  
J. R. Cameron  
G. E. Mathews  
A. Jones  
P. A. McGuire

#### Membership

O. M. Glunt, Financial Vice-President  
E. R. Geib, Chairman, Membership Committee

#### Ladies' Reception Committee

Mrs. E. Huse, Hostess  
assisted by  
Mrs. G. F. Rackett  
Mrs. W. Quinlan  
Mrs. F. E. James  
Mrs. P. Mole  
Mrs. E. C. Richardson  
Mrs. F. C. Coates  
Mrs. C. W. Handley

(Non-members of the S.M.P.E. may secure the papers read at this Convention by subscribing to the Journal of S.M.P.E., Hotel Pennsylvania, New York City.)

#### Monday, May 20th

Address of Welcome.  
Presidential Response, H. G. Tasker.  
Society Business.  
Report of Membership Committee, E. R. Geib, Chairman.  
Report of Progress Committee, J. G. Frayne, Chairman.  
Report of Non-Theatrical Equipment Committee, R. F. Mitchell, Chairman.  
"Non-Theatrical Projection," R. F. Mitchell, Bell & Howell Company, Chicago, Ill.  
"Television and Motion Pictures," A. N. Goldsmith, New York, N. Y.  
"The Talking Book," J. O. Kleber, American Foundation for the Blind, New York, N. Y.  
"Use of Films and Motion Picture Equipment in Schools," Miss M. Evans, San Diego City Schools, San Diego, Calif.

#### Informal Get-Together Luncheon

For members and guests of the Society, speakers to be announced later.

#### General Session

Report of the Historical Committee, W. E. Theisen, Chairman.  
"A Description of the Historical Motion Picture Exhibit in the Los

Angeles Museum," W. E. Theisen, Honorary Curator, Motion Picture and Theatrical Arts Section, Los Angeles Museum, Los Angeles, Calif.

"The Kodachrome Process of Amateur Cinematography in Natural Color," L. Mannes and L. Godowsky, Eastman Kodak Company, Rochester, N. Y.

"Introduction to the Photographic Possibilities of Polarized Light," F. W. Tuttle and J. W. McFarlane, Eastman Kodak Company, Rochester, N. Y.

"Production Problems of the Writer Related to the Technician," C. Wilson, Metro-Goldwyn-Mayer Studios, Culver City, Calif.

"Production Problems of the Actor Related to the Technician," D. C. Jennings, Hollywood, Calif.

"The Inter-Relation of the Dramatic and Technical Aspects of Motion Pictures," Prof. B. V. Morkovin, University of Southern California, Los Angeles, Calif.

"The Problems of a Motion Picture Research Library," Miss H. G. Percy, Paramount Productions, Inc., Hollywood, Calif.

#### Tuesday, March 21st

Report of the Committee on Standards and Nomenclature, E. K. Carver, Chairman.

"Process Cinematography," J. A. Norling, Loucks & Norling, New York, N. Y.

"Calibrated Multi-Frequency Test Film," F. C. Gilbert, Electrical Research Products, Inc., New York, N. Y.

"Some Background Considerations of Sound System Service," J. S. Ward, Electrical Research Products, Inc., New York, N. Y.

"Modern Methods of Servicing Sound Motion Picture Equipment," C. C. Aiken, RCA Manufacturing Company, Camden, N. J.

"Technic of Present-Day Motion Picture Photography," V. E. Miller, Paramount Studios, Hollywood, Calif.

"Engineering Technic in Pre-Editing Motion Pictures," M. J. Abbott, RKO Studios, Hollywood, Calif.

"The Analysis of Harmonic Distortion in a Photographic Sound by Means of an Electrical Frequency Analyzer," O. Sandvik, V. C. Hall, and W. K. Grimwood, Eastman Kodak Company, Rochester, N. Y.

"Make-Up for Motion Pictures," M. Firestone, Max Factor, Inc., Hollywood, Calif.

#### Luncheon and Studio Visit

Luncheon on the lot, and inspection of Warner Bros. First National Studio, courtesy of the Electrical Department, under the direction of Mr. F. Murphy, Chief Studio Engineer. Admission by registration card only; buses leave the hotel promptly at 1:00 p. m.

#### Meeting of the Technicians Branch of the Academy of Motion Picture Arts and Sciences

Mr. K. MacGowan presiding. Members and guests of the S.M.P.E. are cordially invited.

"The Technicolor Process," J. A. Ball, Technicolor Motion Picture Corporation, Hollywood, Calif.

"Psychology of Color," Natalie Kalmus, Technicolor Motion Picture Corporation, Hollywood, Calif.

"Some Problems in Directing Color Motion Pictures," R. Mamoulian, Hollywood, Calif.

Feature Motion Picture in Color: Becky Sharp.

#### Wednesday, May 22nd

#### Laboratory Session

"The Argentometer—an Apparatus for Testing for Silver in a Fixing Bath," W. Weyerts and K. C. D. Hickman, Eastman Kodak Company, Rochester, N. Y.

"Motion Picture Film Processing Laboratories in Great Britain," I. D. Wratten, Kodak Limited, London, England.

"A Continuous Printer for Optically Reducing a Sound Record from 35 mm. to 16 mm. Film," O. Sandvik, Eastman Kodak Company, Rochester, N. Y.

"Optical Printing," L. Dunn, RKO Studios, Hollywood, Calif.



# FORCES OF THE CINEMA

new venture and the program of activities was started which has now become so well known to many in the industry. The original incorporators were: C. Francis Jenkins, Washington, D. C.; Donald J. Bell, Chicago, Ill.; Paul H. Cromelin, New York City; C. A. Willatt, Boston, Mass.; Francis B. Cannock, New York City; W. Burton Westcott, Boston, Mass.; Paul Brockett, Washington, D. C.; E. Kendall Gillett, New York City; Herbert Miles, New York City; J. P. Lyons, Cleveland, Ohio. The new society began to hold semi-annual conventions at which papers were read and discussions invited; and all the material, which was con-

sidered by a committee of publication of technical or scientific interest, was printed in a magazine issued as the *Transactions*. These have appeared in unbroken succession until January, 1930, when they were superseded by a monthly JOURNAL, which in its attractive orange cover is already a familiar sight in libraries and film laboratories of the world.

The Governors of the Society of Motion Picture Engineers are very jealous of its prestige. A typical engineering society, it receives financial support from the industry which it serves, but business considerations are  
(Turn to Page 24)

"Non-Uniformity in Photographic Development," J. Crabtree, Bell Telephone Laboratories, Inc., New York, N. Y.

"A Dynamic Check on the Processing of Film for Sound Records," F. G. Albin, United Artists Studios, Hollywood, Calif.

"New Agfa Motion Picture Film Types," W. Leahy, Agfa Ansco Corporation, Hollywood, Calif.

"Some Sensitometric Studies of Hollywood Laboratory Conditions," H. Meyer, Agfa Ansco Corporation, Hollywood, Calif.

## Semi-Annual S.M.P.E. Banquet

The semi-annual banquet and dance of the Society will be held in the New Supper Room of the Hotel. Addresses by eminent members of the motion picture industry. Tables reserved at the registration desk, for 8, 10 and 12 persons.

## Thursday, May 23rd

### Projection and Studio Lighting Session

Report of the Projection Practice Committee, J. O. Baker, Chairman.  
Report of the Projection Screen Brightness Committee, C. Tuttle, Chairman.

"The Relation Between Projector Illumination and Screen Size," D. Lyman, Eastman Kodak Company, Rochester, N. Y.

"The Optical Efficiency of Mirror Guards," W. B. Rayton, Bausch & Lomb Optical Company, Rochester, N. Y.

"The Photoelectric Cell and Its Use in Sound Motion Pictures," M. F. Jameson, Bell Telephone Laboratories, Inc., New York, N. Y.

Report of the Studio Lighting Committee, R. E. Farnham, Chairman.  
"The Radiant Energy Delivered on Motion Picture Sets from Carbon Arc Studio Light Sources," F. T. Bowditch and A. C. Downes, National Carbon Company, Cleveland, Ohio.

"The Photographic Effectiveness of Carbon Arc Studio Light Sources," F. T. Bowditch and A. C. Downes, National Carbon Company, Cleveland, Ohio.

"Lighting for Technicolor Motion Pictures," C. W. Handley, National Carbon Company, Los Angeles, Calif.

"A New Wide-Range Spot Lamp," E. C. Richardson, Mole-Richardson, Inc., Hollywood, Calif.

"Sources of Direct Current for Non-Rotating High-Intensity Reflecting Arc Lamps," C. C. Dash, Hertner Electric Company, Cleveland, Ohio.

### Sound and Standardization Session

Interim Reports of Academy Committees on the Release Print and Screen Brightness, G. S. Mitchell, Manager, Research Council, Academy of Motion Picture Arts and Sciences, Hollywood, Calif.

"The Technical Aspects of Recording Music for Motion Pictures," R. H. Townsend, Fox Film Corporation, Hollywood, Calif.

"A Device for Automatically Controlling the Balance Between Recorded Sounds," W. A. Mueller, Warner Bros. First National, Burbank, Calif.

"Improvements in Play-Back Disk Recording," G. M. Best, Warner Bros. First National, Burbank, Calif.

"The Projection Background Process," F. Jackman, Warner Bros. First National, Burbank, Calif.

### California Institute of Technology

A visit to the Institute, under the direction of Dean F. W. Hinrichs, Jr.; inspection of the astronomical, aeronautic, and high-voltage laboratories. Admission by registration card only; buses leave the hotel for Pasadena promptly at 1:30 p. m.—a beautiful scenic trip.

### Studio Session

Report of the Sound Committee, P. H. Evans, Chairman.

"Newsreel Standardization," J. A. Battle, Electrical Research Products, Inc., New York, N. Y.

"Non-Directional Moving-Coil Microphone," F. F. Romanow and R. N. Marshall, Bell Telephone Laboratories, Inc., New York, N. Y.

"Wide-Range Reproduction in Theaters," J. P. Maxfield and C. Flannagan, Electrical Research Products, Inc., New York, N. Y.

"Optical Printing of 35 mm. Sound Records," G. L. Dimmick, RCA Manufacturing Company, Camden, N. J.

## Friday, May 24th

### Sound and Acoustics Session

"Sixteen Mm. Negative-Positive and Grain," D. Norwood, Lt. U. S. Army Air Corps, Chanute Field, Rantoul, Ill.

"Modern Instruments for Acoustical Studies," E. C. Wente, Bell Telephone Laboratories, Inc., New York, N. Y.

"Principles of Measurements of Room Acoustics," E. C. Wente, Bell Telephone Laboratories, Inc., New York, N. Y.

"Recent Developments in Architectural Acoustics," V. O. Knudsen, University of California, Los Angeles, Calif.

"Studio Acoustics," M. Rettinger, Pacific Insulation Company, Los Angeles, Calif.

"Technical Considerations of the High-Fidelity Reproducer," E. D. Cook, RCA Manufacturing Company, Camden, N. J.

"Development and Design of the High-Fidelity Reproducer," F. J. Loomis and E. W. Reynolds, RCA Manufacturing Company, Camden, N. J.

### General Session

"Technical Aspects of the Motion Picture," A. N. Goldsmith, New York, N. Y.

"The Contribution of Dr. Lee deForest to the Electronic and Motion Picture Arts," G. A. Chambers, Eastman Kodak Company, Hollywood, Calif.

"The History of the Talking Picture," W. E. Theisen, Hollywood, Calif.

### Apparatus Symposium

"Three New Kodascopes," N. Green, Eastman Kodak Company, Rochester, N. Y.

"A Continuous Film Camera for High-Speed Photography," C. T. Burke, General Radio Company, Cambridge, Mass.

"A Professional 16 Mm. Projector with Intermittent Sprocket," H. A. DeVry, Herman A. DeVry, Inc., Chicago, Ill.

"Arc Supply Generator for Use with Suprex Carbons," O. S. Imes, Century Electric Company, St. Louis, Mo.

"The Akers 35 Mm. Hand Camera," W. Blumel, Akers Camera Company, Hollywood, Calif.

"A Sound Reduction Printer," O. B. Depue, Chicago, Ill.

"A 35 Mm. Automatic Daylight Sound Motion Picture Projector," A. B. Scott, SCK Corporation, Hollywood, Calif.

"Vitachrome Diffusionlite System and Lamps, Their Uses and Applications," A. C. Jenkins, Vitachrome, Inc., Los Angeles, Calif.

"The Use of Cinematography in Aircraft Flight Testing," F. H. Colbohm, Douglas Aircraft Company, Inc., Santa Monica, Calif.

"The Use of Motion Pictures for Human Power Measurements," J. M. Albert, Chas. E. Bedaux Company, San Francisco, Calif.

"The Motion Picture in Japan," Y. Osawa, J. Osawa and Company, Ltd., Kyoto, Japan.

"The Motion Picture Industry in India," G. D. Lal, Delhi, India.

### Sound Session

"Recording Music for Motion Pictures," M. C. Batsel, RCA Manufacturing Company, Camden, N. J.

"Analysis of the Distortion Resulting from Sprocket-Hole Modulation," E. W. Kellogg, RCA Manufacturing Company, Camden, N. J.

"A Comparison of Variable-Density and Variable-Width Sound Records," E. W. Kellogg, RCA Manufacturing Company, Camden, N. J.

"A Consideration of Some Special Methods of Re-Recording," E. D. Cook, RCA Manufacturing Company, Camden, N. J.

"Characteristics of the Photophone Light-Modulating System," L. T. Sachtleben, RCA Manufacturing Company, Camden, N. J.

"Mechanographic Recording of Motion Picture Sound-Track," J. A. Miller, Miller Film, Inc., New York, N. Y.

"Application of Vertical-Cut Recording to Sound Pictures," K. F. Morgan, Electrical Research Products, Inc., Hollywood, Calif.

## MAKING MOST OF EXPOSURE

(Continued from Page 5)

within the sensitivity range of the emulsion. But what would have been the case had the original series of light intensities been on the order of one to ten? In that case a single unit of overexposure would have merged the two heaviest deposits, two units of overexposure would have merged the three heaviest deposits, and so on. In a like manner, any degree of underexposure would have merged two or more of the lightest areas, so that any degree of incorrect exposure would have resulted in an incorrect reproduction.

When the intensity range of the original equals the sensitivity range of the emulsion there is only *one* correct exposure. Any departure from this cannot result in faithful reproduction of the original. In such a case although the latitude of the emulsion has not changed, there is absolutely no permissible latitude of exposure.

What, then is the case when the experimental emulsion of ten-degree latitude is exposed to a light series ranging in intensity from one to twenty units? Ten units, any ten consecutive units, will exhaust the latitude of the emulsion. If the most intense light is allowed barely to reach the bottom layer, we have the latitude exhausted by light intensities from eleven to twenty, while the intensities from one to ten have not been able to affect the emulsion. The entire strip shows a full range of intensities and is apparently normal, but the lower intensities have not been registered. In practice, a print would be brilliant, with a full range of tone, but the shadows (representing weaker lights) would be inky black and without detail. This is a type of underexposure which cannot readily be recognized by the beginner.

No matter how the exposure is manipulated, some error creeps in. Suppose we expose so that light intensity six just blackens the top layer (Fig. 6). Then the ten areas of the emulsion will reproduce light intensities six to fifteen. The first five intensities will not appreciably affect the emulsion, and the last five will use up the full range and affect the emulsion in exactly the same manner as the fifteen-unit intensity. This means that weak lights will not record and intense lights will show no differentiation. In practice, the print will show inky black shadows without detail, and burned out highlights, also without detail. This is commonly seen in photographs of a brightly lighted landscape, where shadow detail and extreme highlights are sacrificed to retain the desired fidelity in the middle of tones.

As we shall see later, the best exposure in actual practice is that which makes use of the *known* limits of latitude and the *known* limits of light intensities, balancing the two to the best average advantage.

Should the experimental emulsion be given an exposure which would permit the weakest light to affect the first layer, we should have the ten greatest intensities all recorded just like the tenth one, sacrificing all detail in all light intensities above the middle average.

**TONAL COMPRESSION.**—There are times when the important portions of a subject have such a great range of intensities that they exceed the normal emulsion latitude, yet they must be reproduced. To illustrate such a condition, we shall again consider the range of twenty light intensities and our original emulsion with ten degrees of latitude. We have seen that when the weakest intensity is allowed to act, the final eleven areas of the emulsion are totally blackened. Obviously we cannot accept such a condition.

Imagine, then, each layer cut in half (Fig. 6), so that each unit of light intensity blackens only one-half of a grain. In such a case the full range of twenty light units would be just sufficient to give us the full tonal range of which the emulsion is capable, the tones of adjacent areas differing by a half tone instead of a full tone. In such a case we have a proportionate reproduction. Although we have not extended the actual range of tones, we have succeeded in representing twenty full degrees of light intensity of the original by twenty half tones. This is a satisfactory solution of the problem.

In practice this effect can be obtained by controlled development. Fortunately, the actual blackening of the negative does not occur until the emulsion is developed. This blackening does not take place instantly, but is a gradual process. At first practically all of the light-affected areas become faintly grey. As development proceeds, the areas which received the most light grow in intensity at a rate corresponding to the intensity of the original light. Thus we have all the tones represented almost alike at first, but during development the *difference*, that is the amount of difference, between any two areas increases. Fig. 7 shows diagrammatically the growth of contrast during development; 7a represents the low contrast of underdevelopment; 7b represents normal development; 7c

represents the excessive contrast of overdevelopment. Fig. 8 shows the difference between ideal and actual emulsion development reactions.

In actual practice the difference in density between any two underexposed or overexposed areas is less than the difference between any two areas in the middle range—assuming a uniform series of exposures throughout.

If we give sufficient exposure to allow the faintest light to act on the emulsion, that effect will be apparent early in the process of development. The development is watched, and as soon as the area which received the most intense light acquires the density which we regard as maximum, the action of development is stopped. In this way we can, in actual practice, achieve the same result as we did in the experimental emulsion by dividing the grains into independent halves.

In the finished negative, although the proportionate difference between tones will be only one-half that of the original, the full range will be reproduced in steps which are proportional to the original. This compression of tone scale by means of controlled development depends for its success on giving that exact exposure which will just serve to record the deepest shadow of importance. It cannot be performed with fullest success unless the photographer knows the relation which exists between the full range of original light intensities and the latitude of the emulsion. In compression control we give the exposure necessary to register the shadows, and we stop development just before the stage at which the highlights start to become too opaque. Hence it is easy to understand the reason for the old golden rule of photography: EXPOSE FOR THE SHADOWS—DEVELOP FOR THE HIGHLIGHTS.

The latitude of most modern emulsions is such that for most average subjects an exposure can be given which will produce satisfactory results when followed by standardized development. This cannot be done, however, unless the exposure given has been the *one* correct exposure for the circumstances! To secure the best technical results under any circumstances it is essential that the correct exposure be given—and, with the rare exception of a short intensity range in the original, there is only *one* exposure which is correct for any given subject and light!

There are, of course, times when the best technical result is not the best pictorial result. There are many times when the photographer will deliberately give the wrong exposure in order to secure some definite effect; but even these cases demand a *knowledge* of the right exposure, so that the error may be made that will give just the effect desired.

This deliberate distortion of exposure, as well as the methods used in making a scientific determination of the exposure factor, will now be discussed.

It is well known that many special effects are secured by

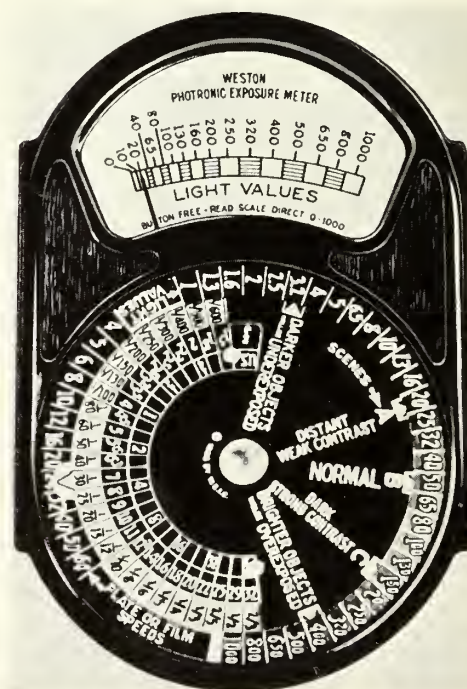


Figure 10



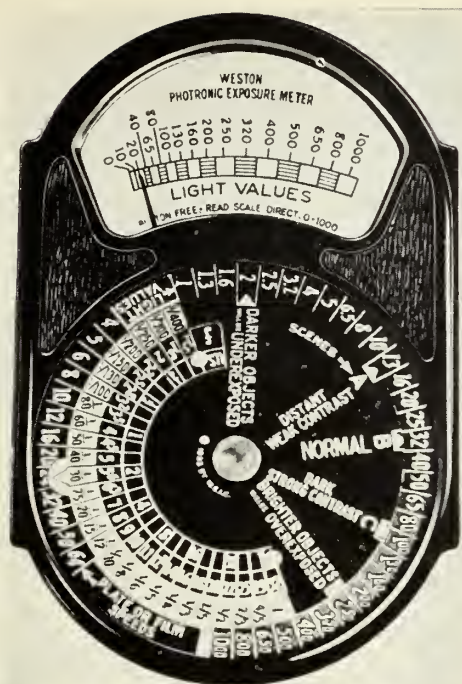


Figure 11.

making use of an exposure decidedly less or decidedly greater than the theoretically correct one. There are many photographs which owe their unusual charm to just such deliberate errors. It must be noted, however, that such effects are the result of some specifically deliberate error and have not occurred through accident.

Before a photographer can make effectual use of abnormal exposure in this way, he must have a knowledge of the exact effect which will result from a definite degree of under or overexposure. The degree of error must be carefully calculated, but it is obvious that such calculation is only possible when he has some fixed standard of correct exposure from which to deviate. Under such conditions he can estimate the extent of deviation necessary and control the exposure correspondingly.

Abnormal exposure, to be effective, must be based on a *known, correct exposure!*

From the evidence which has been offered, we may assume that a knowledge of the one correct exposure will, *in every case*, be productive of better results than if such knowledge were not available.

Admitting the value of correct exposure in its theoretical and more generalized practice, what specific practical knowledge may be made of such knowledge?

The whole problem of exposure determination is one involving the reduction of the many contributing factors to the one common denominator—light intensity. It is easily recognized that correct exposure involves the exposure of an emulsion of specific sensitivity to a light of definitely *known* intensity for a specific length of time.

The sensitivity is a characteristic of the emulsion fixed in the factory at the time of manufacture. The duration of the exposure is controlled by the photographer by means of the shutter or lens cap. All other factors are merely contributory, in some way or another, to the intensity of the light!

Correct exposure then is reduced to a matter of determining (preferably by direct measurement) the intensity of the light and then limiting the time of exposure so that the light intensity will be properly related to the sensitivity of the emulsion used.

The determination of correct exposure involves nothing more nor less than the determination of the light intensity, measured with the greatest degree of accuracy compatible with average working conditions and the convenience of the photographer.

Although involving a slight digression, it is interesting to review the methods and devices which have been used by photographers for many years, in contending with this fundamental photographic problem. To understand this fully we should understand the complexity of the problem and some of the more common factors involved.

#### Of Locale:

Geographical location.  
Season of year.  
Time of day.  
Atmospheric conditions (clear, hazy, cloudy, etc.).

#### Of Subject:

Specific illumination (open sunlight, shade, etc.).  
Color of surroundings.  
Reflection factor of surroundings.  
Surface texture of subject (glossy, dull, etc.).  
Color of subject.  
Reflection factor of subject.

#### Of Camera Equipment:

Equivalent aperture of lens (*f* number).  
Duration of exposure (shutter time).  
Transmission factor of lens (usually ignored).

#### Of the Sensitive Material:

Sensitivity factor of the emulsion (emulsion speed).

Reviewing these in reverse order, the sensitivity is a fixed factor. The camera equipment factors of aperture and time duration are under control; the transmission factor, too often ignored, is really important. The factors of locale and subject are important only as they contribute to the intensity of the light reflected from the subject in the direction of the camera.

These factors have been arranged in tables, each one being assigned a numerical factor. From these factors the exposure could be estimated. In using any table or calculator based upon such factors, however, it is obvious that the individual determination of the factors must be made by personal observation and judgment. For that reason errors in the final result might be cumulative or one error might compensate for another. The veteran photographer could depend upon his past experience in the use of his personal judgement.

A detailed review of the development of photographic exposure meters would involve too much space and would serve no good purpose. It is enough to say that following the table and calculator there came the sensitive-paper meter, which measured the incident illumination, leaving the factors of the subject to personal judgment. After this there came the extinction meters, based upon elementary photometric principles involving the extinction of a field rather than the matching of two fields. With such an indefinite zero point, it is obvious that such meters would not give absolute results. Users found it possible to secure several readings under identical conditions, so that it became necessary to "learn" the meter. Thus, in every phase we find the factor of personal judgement entering to a degree sufficient to alter the result definitely.

The problem of exposure determination involves only a determination of the intensity of the light reflected by the subject. With a simple slide rule to adjust this intensity factor to the controlled factors, the single measurement is all that is necessary to determine exposure accurately.

The importance of an accurate determination of the intensity of the light reflected from the subject has been stressed. How may this be done with sufficient accuracy to be of real value? How may it be done without any danger to the human error which renders the older methods obsolete? Modern progress, civilization itself, is a product of scientific research. Science itself may readily be resolved into a system founded upon exact, instrumental measurement! Indirect measurements, the use of comparison scales, are discarded whenever possible and direct measurement substituted in every possible case. Just so in exposure determination; the way in which dependable results may be obtained is by the use of exact, instrumental measurement. This is the way in which quantitative factors are determined in any science.

We must face the fact that, as far as exposure is concerned, photography is a science—and an exact one. The place of esthetics does not enter into this discussion. There is a place for art in photography, but not in the way of making a photo-chemical determination such as that of exposure.

In any measurement we must have a unit of comparison and an instrument calibrated in such units. As exposure determination is a measurement of light, we use the conventional light unit for measuring the brightness of an illuminated surface, the candle per square foot (the candle power reflected by a square foot of the surface).

The instrument used in making measurements involving these units is some convenient form of photometer which does not involve any visual comparison. Obviously this means that some form of photo-electric cell, used in combination with an electrical meter, is essential. Such a combination must possess certain characteristics if its value is to be such that the instrument will meet the requirements of the photographer.

(Concluded in July Issue)





## An American Cameraman In American Studios

By RALPH HAMMERAS

Having recently read that the foreign studios were surpassing Hollywood in technical shots, and after twenty years of motion picture work, I wish to speak briefly in defense of our American picture studios, their personnel, experience and accomplishments in this branch of motion picture production.

I have seen in this period of time miniatures grow in importance from the time when, with three or four milk bottles and a little plaster poured over them, we constructed rolling hills for a countryside, to the largest miniature ever constructed in size, cost and production-value either in Hollywood, New York or foreign studios.

The largest miniature, of which I speak, was built at the Arcadia Balloon Hangar—depicting New York City of the future, in the year 1980 to be exact. This set was a colossal affair with futuristic skyscrapers towering 250 stories in the air, nine different lanes of traffic and levels for pedestrians and automobiles, air lanes with planes in motion.

Each detail was carried out with the utmost care and precision. Model automobiles appeared on the highways, canals were constructed for ocean-going steamers to dock beneath the buildings and all streets and skyscrapers were electrically lighted. Dirigibles were flying through the air or moored to the buildings and landing fields were included upon the roofs of the skyscrapers for the airplanes.

The set measured 250 feet long, 90 feet wide, and 80 feet high, the practical operation of the set being controlled beneath the street levels with 400 pulleys and belts all out of sight. Two generators, 100 sun arcs were necessary for the lighting and, together with two camera crews, 220 men were required for practical operation during shooting.

The lay-out of the set was started in April and completed by August 1st, and the total cost for the one miniature was \$257,000 plus many gray hairs it cost our technical staff before all problems were solved.

Other outstanding miniatures were the reproduction of London, showing Zep air raids during the World War; also in this category is the work done by Hollywood experts on the "Lost World" picture, undoubtedly a demonstration of the greatest technical ability ever created or assembled. The greater part of this latter production included miniatures, glass paintings and practical models of pre-historic animals all made from authentic data, requiring vision and creative genius for the effects produced. The time involved was 14 months so far as the operations of the technical staff was concerned.

The most recent of Hollywood technical accomplishments include "Dante's Inferno," combining miniatures with full size sets operating in a tempo with life action. This is a step forward, as the combining of the two actions calls for exacting scales and smoothness of operation. Miniature sets with Projection Process Backgrounds have also been worked out to allow the shooting of hi-speed shots.

Regarding technical advancement in Hollywood, after graduating from the Scenic and Title departments, I, together with our personnel, first started experimenting with paintings on glass (later called glass shots, which process was patented). Then came matte shots; optical; transparency color separation and projection process. Each of these processes, as well as Process Projection Equipment, as used in the American studios, is now at so high a point that only minor improvement need be worked out and, I might add, that these improvements are being made by the staffs which were instrumental in introducing their practical use in the studios to the extent that they are now an important part of every production.

With the perfection of all of these processes in Hollywood there has been a steady "trek" of technicians from all parts of the world to learn how and what it is all about, a standing tribute to the leadership of our Hollywood technicians, who are constantly going forward in their contributions to motion picture art.

As a beautiful example of the perfect miniature, that made by Mr. Hammeras and his staff, for the great Fox  
(Turn to Page 24)

### *The Last Word*

In Sound Recording

#### THE NEW PRINCIPLE MINOR QUARTZ OPTICAL UNIT

becomes an integral part of your sound recorder—this unit is cemented into a steel block—it focuses a beam of light of great intensity and actinic value a distance away and on the film, which PROVIDES CLEARANCE and PREVENTS SCRATCHING of the sound track. The width of the beam of light measures from .0005" to .0008" as it strikes the moving film.

This Quartz Optical Unit was used for the sound effects in the recent production of the "Tarzan" picture, filmed in Guatemala and referred to in the March issue of International Photographer.

Send for details and specimen of sound track.

**C. C. MINOR**

1835 Whitley Avenue

Phone: GR. 4781

Hollywood



## MOTION PICTURE SOUND RECORDING

(Continued from Page 7)

ries the fuses for the filament and plate battery circuits of the microphone amplifiers. The plate batteries are placed in a metal *B* battery case, which stands near the junction box and is connected directly to it.

The suspension type of microphone which has just been described is employed generally for motion picture sound recording work and is usually supported on a microphone boom; while the other two main types, the desk and stand condenser microphones, are used principally in radio broadcast and public address work.

The desk-type condenser microphone has the amplifier mounted in a square box with the transmitter housing supported solidly on top of it in a special frame, or set into the face of the box. In the stand type of micro-

phone, the condenser head is fastened to the top of a slender vertical pillar which is supported by a heavy metal base. The height of this stand is adjustable from four to six feet, permitting the transmitter to be raised or lowered to accommodate the height of the speaker. The amplifier is contained in a box mounted in the metal base of the stand.

These various types of condenser microphones all operate on exactly the same principle and are identical in internal construction—the only variation in them being in the mechanical features. In the next chapter, we will consider the operation of the condenser transmitter without any regard to the type of case in which it is housed.

## A NEW FIELD FOR PHOTOGRAPHY

(Continued from Page 3)


do contain vast sums in golden treasure is no longer doubted as many American museums contain exhibits of such relics taken from coast graves.

Although I was unable to continue my explorations because of a call from my wife who had taken sick and also by necessity of returning to the states, I am still certain that the stories told me by the Indians are truths and I am hoping to visit and bring back pictures of the great round copper-house and the still standing stone cities of the mountains and perhaps see the dwarfs which the Indians claim live in great caves in the mountains.

On my next trip I shall be prepared to properly protect my films and I shall have movie cameras, flash-light equipment, etc., as well as proper tools for excavating some of the great graves and I hope also before long to be able to show you some photos from a heretofore unknown district of Central America.

The Indians are my friends now and I have the reputed locations of Pirate Morgan's buried loot, also other buried pirate gold, countless great graves, ancient cities, etc., and the unspeakable beauties of the country.

**The Motion Picture Relief Fund is a guarantee of the Cameraman's well-being in hard times. When Prosperity comes to you, don't forget that it is your time to help.**



*Looking for new worlds to  
conquer The Eyemo 35 mm.  
Hand Camera and new Eyemo  
Tripod*

With as many "characters" as there are photographic conditions, the Eyemo has yet to be stumped at a movie-making task where mobility and perfect photography are prime essentials. Seven film speeds, three-lens turret, variable area view finder, hand crank or motor drive, 200- to 400-foot auxiliary magazines. And in addition, there is the new special Eyemo Tripod, extra rigid, light in weight, developed especially for news, scientific, and exploration work with the motor- and magazine-equipped Eyemo. Smooth working pan and tilt. Up tilt 45° with 400-foot magazine, 60° without magazine. Tilts straight down. Write for complete details.

**BELL & HOWELL COMPANY**  
1849 Larchmont Ave., Chicago; 11 West 42nd St., New York; 716 North LaBrea Ave., Hollywood; 320 Regent St., London (B & H Co., Ltd.). Established 1907

Please mention The International Photographer when corresponding with advertisers.

## THE LOW-DOWN ON PRESS PHOTOGRAPHY

(Continued from Page 9)

difficult as time goes on, hence, the shirker and slacker will soon lose out in this delightful game of press and free-lance photography.

The equipment is secondary, though, as has already been mentioned. A complete understanding of photography, plus confidence in handling the camera, are powerful assets. Then comes a knowledge of markets and an eye towards composition and story-telling forcefulness. These might be considered the principal ingredients which go into the make-up of a good, first-class, free-lance press photographer.

It is the finished print that counts with the editor, hence, care should be exercised to see that only flawless prints are submitted. The making of a satisfactory and technically good negative is one thing. To make a print which embodies the best qualities of the negative is something else again. Here, too, many workers fail in the belief that once a perfect negative is secured, nothing else remains to worry about. But there are prints and prints. A photographer should be able to turn out not only perfect negatives, but perfect prints as well.

It is in most cases customary to submit glossy, ferrotyped prints with a certain amount of contrast. The commonly accepted sizes are 5 x 7 and 8 x 10. Coming back for the moment to negative sizes, it will be seen that a small camera is just as useful as a larger one—the negatives have to be enlarged anyway, even with a 4 x 5 camera!

Most engravers prefer a glossy print, although there is no good reason why half-tones from smooth matte and even rough surfaced prints cannot be made. Since it is the custom to use glossy prints, it behooves the beginner to start in right by producing the type of print which is acknowledged as standard. In the making of a half-tone, a certain amount of detail is bound to be lost. This is particularly true of newspaper half-tones which are made with coarse screens. For this reason, prints for publication should be snappy and even contrasty in order to "hold together" in the half-tone. Just how this is best done is determined mainly by experience. Modern engraving is tremendously improved over the old methods, and with conditions favorable, fine screen half-tones can be produced which are remarkably faithful.

Beginners who feel that they qualify for free-lance photography may do well by investigating a course on the subject. Like any endeavor that is creative, much must be done by the individual. Books and schools can point the way and possibly smooth out the rough spots.

Universal Photographers, Inc., 10 West 33rd Street, New York City, offers an excellent home-study course in Journalistic Photography that is well worth investigating. The various books mentioned at the beginning of this article will provide sufficient information to start on, indeed to proceed nicely, for the person qualified.

Free-lance press photography is a fascinating field. It holds a wealth of possibilities. But like every other field, it is horribly overcrowded; nevertheless, in this case, competition need be given no consideration, for the vast majority who flock to this work soon find themselves unsuited to it. For this reason, it is always "open season" for the one who can diligently persevere and make good. Quality is always recognized, hence the serious worker need fear competition not at all. The path is not a rose-strewn one, it must be remembered. It entails hard work and quick thinking, usually, but it also has its rewards.

### NOTES ON CANDID PHOTOGRAPHY

Ten years ago there was no such thing as a candid cameraman as we know him today. True, photographs of the candid type were attempted now and then—and with but little success, due to the cumbersome and instantly recognizable cameras—but it was not until comparatively few years ago—well, if you want to be specific about it, say four or five years—that candid photography and candid cameramen really came into their own as a part of our everyday lives. Today, almost every newspaper and magazine features candid photographs—this is a picture age, you know. You cannot have failed to see them, or indeed, they may now be so commonplace that you no longer recognize them as unusual photographs. In any event, candid photography is here to stay, and is revolutionizing the entire conception of photography in general.

But what is candid photography? It is nothing alarming, except to some unfortunate personages who have not the good grace to permit the photographer to secure a pleasing picture of them. Candid photography is the art—and often as not, not so much art as art—of photographing people and objects in their everyday environment; in the case of people, when they are not necessarily aware of the fact that their picture is being made (pictures are made and not taken). A candid picture, for example, shows a person in a far more favorable aspect than the usual garden variety of photograph, for like as not they are unprepared for the photographer; they do not pose


or grimace. Hence, we see informal pictures of all personages in our daily reading matter, and like them all the more because of the informality. At heart, we are all informal, or would like to be if we dared. Why not, then, pictures that are informal? Candid photography supplies the necessary ingredient—unpreparedness.

And who is the candid cameraman? He may or may not be the regular variety of news photographer of yester-year. The chances are he is not, for candid photography is a distinct departure from the routine of regular press photography. New tricks are required, and most important, new equipment and technique. These, the old-time press cameraman has not permitted to install themselves in his system. The average well-known, and therefore successful, candid cameraman of these modern times is a young enthusiast. He has to be enthusiastic about the work in order to succeed, for candid photography is a good deal more difficult and fraught with greater dangers than regular photography. In fact, enthusiasm counts for as much technique, and technique is mighty important. If you want to see a perfect picture of confusion, just place a candid camera in the hands of your old-style press photographer!

Photographers who have identified themselves in this new and fascinating field include Reme Lohse, Ivor Thomas, Kip Ross, Thomas McAvoy, Rudolf Hoffman, Harold Harvey, Joseph Steinmetz, and a host of others too numerous to mention. These few are mentioned because their names are to be seen almost consistently in the newspapers and magazines of the better type. These men are well paid for their efforts. But then, their ability to go into theatres, night clubs, hotel lobbies, radio broadcasting stations, ballrooms, and the White House and get actual photographs under ordinary lighting conditions—which would be impossible to photograph several years ago—is worth a good deal more than that paid for regular photography. Then there are those new advertising photographs—have you noticed how different these are from what they were only a comparatively short time ago? You have the idea—candid pictures. Pictures made without preparation, right on the spot and unusual angles in most cases. Large cameras cannot possibly cope with the situation.

But without the candid camera, there would be no candid photography for us to delight in, so some consideration of the equipment involved is mighty important in order to fully understand and appreciate the thousands of modern pictures which greet our eyes daily in the press. First, the camera has to be small. It must often be concealed and operated from under the coat. It must be able to make pictures from all conceivable angles, from straight up to straight down. A camera must of necessity be tiny in order to perform such acrobatics. The candid camera, then, is a small affair which can almost be hidden in the hand. This it is. The most popular cameras of this class use standard 35 mm. motion picture film, producing a negative hardly larger than an airmail stamp—to be exact, 1 x 1½ inch. Because motion picture film is made in a number of different types, the candid camera is enabled to use the fastest possible film material. Up to 36 negatives can be made at a loading, hence a whole series of pictures, showing an almost continuous series of views of an event or activity can be made with almost lightning-like rapidity.


Secondly, in order to make the utmost use of whatever light is available under all conditions, the camera must be equipped with a "fast" lens. Technically, this means a lens with a maximum aperture of f:2, f:1.9, f:1.5, or f:1.4. If you have a Kodak with a lens whose maximum speed is f:7.7 or even f:4.5, you can begin to appreciate the speed these lenses possess. The

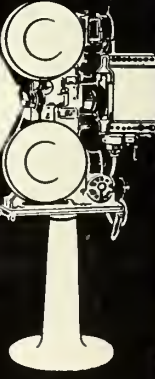


**EVERYTHING  
PHOTOGRAPHIC**  
for Professional and Amateur

New and used. Bought, sold  
rented and repaired. Designers  
and manufacturers of the  
H.C.E. Combination Lens  
Shade and Filter Holder  
for any size lens.  
Send for bargain catalogue

**Hollywood Camera  
Exchange**  
1600 Cahuenga Blvd.  
Hollywood  
Tel.: HO-3651  
Cable:  
**HOCAMEX**







## MINIATURE CAMERA PHOTOGRAPHY

(Continued from Page 11)

The negative is placed in the formalin solution for from 10 to 15 minutes according to the temperature—15 minutes if made with cool water, and 10 minutes if made with warm water. The film is then washed in about three changes of water, and developing, fixing and washing carried out in the usual manner without further modification.

As a reminder, the photographer who contemplates encountering tropical conditions on his vacation, should take advantage of films offered in sealed tropical containers. These can usually be obtained at no additional cost over the price of the film supplied in ordinary containers.

**Free Education:** From time to time various salons and exhibits of miniature camera photographs are held, at which the photographer, can obtain a liberal education in what constitutes a fine print, besides being imbued with ambition to produce finer pictures. It is inevitable when viewing outstanding work that one is inspired with the desire to produce results equal to those exhibited.

An exhibit of photographs made with the Contax camera has already been held. At this writing a Rolleiflex Salon is to be held at the show rooms of Burleigh Brooks in New York, and there is a traveling Leica exhibit whose itinerary will cover many large cities. If possible the miniature camera photographer should not miss the opportunity of attending such exhibits. In the Leica exhibit enormous enlargements made from the 1 x 1½ inch negative are on display which will make the miniature camera photographer wonder if there ever was such a problem as "grain." Besides there are numerous excellent photographs showing that the miniature camera is applicable to practically every field of photography. One cannot help leaving this exhibit with the feeling that the miniature camera has practically limitless bounds. If it is at all possible for the photographer to attend such exhibits he should do so.

candid camera is naturally equipped with a speed lens, and this coupled with the speedy film available—which can be even further speeded up by immersing it in ammonia—make possible the photography of pictures in ordinary room lighting. Room lighting may appear bright enough to the eye, but if you have ever tried to make a picture of Aunt Betty in the parlor with ordinary room lighting, and were rewarded with a completely blank film, you will realize what this means.

Thirdly, it goes without saying that a comprehensive knowledge of photography is necessary in order to intelligently operate the candid camera. Being small, having a fast lens, and using speed film, it requires a certain technique. The average amateur Kodak operator would get nothing but blanks for negatives if he attempted to use one of these cameras without some instruction or study. On the other hand, candid cameras are simple enough. The vast majority of mistakes made with them is due to being unaccustomed to the new technique or to carelessness. The tiny cameras are precision instruments through and through, and if you value your cameras in accordance with their size, you will be barking up the wrong tree when it comes to candid cameras. They cost, on an average, \$200.00 to \$300.00 apiece, and to the candid photographer, worth every penny of



SHOOT YOUR FAVORITE ACTRESS FROM YOUR SEAT IN THE THEATRE



SHOOT ALL THE FUN OF A GLAMOROUS EVENING FROM YOUR TABLE



SHOOT CHILDREN WHEN THEY'RE NATURAL—PLAYING, HAVING FUN



SHOOT YOUR FRIENDS WHEN THEY'RE NOT LOOKING—CATCH THEM ALIVE

Leica shots by Ivan Dmitri

# SHOOT!

## ACTION PICTURES NIGHT OR DAY

### HAVE FUN

Take life as you see it, night or day, inside or out. Slip a compact Leica into your pocket and take it to the theatre, to that wedding, or anywhere, and snap intimate pictures that are really alive. 30 shots of life for \$.70.

### NOW—CANDID SNAPSHOTS IN COLOR!

Leica DUFAYCOLOR film now makes natural color shots just as easy to take as any other pictures. No accessories are needed and you get 30 exposures for \$3.00. Leica leads again.

### A POCKET FULL OF PRECISE FUN

For you this precision miniature camera will be a pocket full of fun that almost automatically takes perfect pictures under any conditions. Beautiful, clear enlargements up to 12 by 18 inches and more.

### LEARN MORE ABOUT LEICA

A postcard will bring you fascinating FREE BOOKLETS about the many remarkable features of the CAT'S EYE LEICA, the camera that "sees in the dark". It sights and focuses automatically for you; accidental double exposures are impossible; it has interchangeable lenses, a focal plane shutter, speed from 1 to 1/500 of a second and many other features. Write today.



CAT'S EYE  
**LEICA**

Model F with f2 Summar Speed Lens

The original miniature candid camera that has revolutionized photography.

PRICES START AT \$99 • U. S. PATENT NO. 1,960,044

E. LEITZ, INC. DEPARTMENT 38 • 60 EAST 10th STREET • NEW YORK CITY

these amounts. Strange as it may seem, not one of these high-priced instruments is made in the United States. They are imported from Germany almost exclusively.

Just recently, a new color process known as the Dufaycolor process has been made available for candid cameras. It marks a new era in natural color photography and does things no other process has yet been able to do. This, the enterprising candid cameramen are taking to, with very definite vigor, for it means additional revenue for them. Already natural color candid photographs have appeared in certain "class" magazines, and the indication is that they will be abundant in the future. Imagine candid pictures of stage shows in full, natural color? That's something, isn't it? Five years ago such a thing was unheard—undreamed of, but today it is a part of our ever-advancing and progressive lives. Unheralded, unposed, the pictures are quickly and completely exposed in the flick of an eyelash—just like that. Years ago, great preparation was needed. Lights were hauled in, people caused the inconvenience of posing and remaining still for a matter of seconds. Today, nothing is even known about the picture being made. It is all over even before you know a picture is intended.

That is candid photography.

Please mention The International Photographer when corresponding with advertisers.



## THE S. M. P. E.—AIMS AND ACCOMPLISHMENTS

(Continued from Page 17)

never allowed to color its work. Although the Society has grown to ten times its original size, the same broad, disinterested aims are pursued as in the beginning. A humorist has remarked that it requires a large balloon full of "aims" to support a very small basket of "accomplishments." Perhaps, but in this case the accomplishments are not lacking.

Besides printing a JOURNAL, whose merit is so appreciated that its articles are often reprinted in the industrial magazines, the Society, through a permanent Standards Committee, has made possible the interchangeability of apparatus parts throughout the industry. A booklet has been issued setting forth desirable film standards and sprocket dimensions, and this second booklet records and cross-indexes all the scientific papers which have appeared in the *Transactions* during the 15 years of its life. A less tangible accomplishment is the personal co-operation, secured through the conventions, and the friendships which have been promoted in an industry not exactly famous for its spirit of brotherhood. It is no small tribute to the appreciation of manufacturers that they have allowed their employees to go from New York and the East to Hollywood to attend a West Coast convention. Many of the members who had been working on film problems for years would never have seen their product used in the field but for this and other similar opportunities.

The Society grants two kinds of membership, an *Active* status to persons carefully selected for their technical qualifications, who by their ability to vote on questions of policy can carry on the business of the Society; and *Associate* rank to anyone in good standing professing interest in motion picture matters.

The Society has a President, a Past President, two Vice-Presidents, a Secretary, a Treasurer, and a Board of Governors, composing a directive unit which manages the affairs of the Society. The officers are chosen by

election and every active member may feel he plays a part in the Society's work and progress.

Headquarters in New York have not proved sufficient for the Society's almost international scope. There is now a London section, numbering over 100 members, meeting in the British capital, which will more and more form a useful contact between America and Europe. Another section in Hollywood keeps in direct touch with the directors and cameramen in the field, and also enables the Society to maintain close co-operation with the Academy of Motion Picture Arts and Sciences. New York and Chicago have established sections under capable local leadership. The sections serve as recruiting ground for many of the excellent papers which are appearing in the JOURNAL.

It is not possible to suggest in this short note all the subjects which are presented at meetings. The chemistry and physics of the photographic process take a prominent place, and to these must be added the fundamentals of sound recording. Against this background appear a host of specialized papers on optics, projection, theater lighting, studio technic, artistic and musical appreciation, of such wide variety that some article in every issue of the JOURNAL must appeal to the reader.

A technical society, like a telephone exchange, becomes more useful the larger it grows. Much has been accomplished, but more remains to be done. As long as the industry continues to thrive on the products of science and invention, just so long will there be work which can only be performed by those willing to give disinterested service. It is in the societies where such work is being done by those who have knowledge, that knowledge can best be gained by those who are not so fortunate.

The Governors of the Society of Motion Picture Engineers cordially invite to the appropriate grade of membership any new friend who may have become interested in these pages.—*From the S. M. P. E. Journal.*

## AMERICAN CAMERAMAN IN AMERICAN STUDIOS

(Continued from Page 20)

picture, "Just Imagine," was technically perfect, as will be seen by the accompanying illustration.

Helicopters descended slowly and, on one occasion, two of these strange ships "floated" side by side, while their passengers passed the time of day until sent on their way by traffic cops stationed in nearby blimps. Zeppelins and twin dirigibles swung over the town at will. Fourteen switches controlled the myriad of lights which illuminated the buildings and highways and also the beacons

which made the airways light as day.

The imagination expended on this work was worthy of Jules Verne. This is a good place to mention that some of Mr. Verne's seemingly wild dreams have come true—and even he never had the temerity to suggest that a submarine would enter on a polar hunt under the ice, which strange journey right now is under preparation with the government contributing a submarine for the purpose.



**MAX FACTOR'S**  
NEW  
*Satin Smooth*  
**LIQUID FOUNDATION**  
A REVELATION IN FACIAL MAKE-UP



*The opinion of every cameraman who  
has been fortunate enough to obtain*

EASTMAN

*Super X*

Panchromatic  
Negative

*“... It's the greatest and finest  
negative film I've ever shot!”*

J. E. BRULATOUR INC.

---

# Motion Pictures Statistics To Date

Compiled by N. D. Golden, Department of Commerce; Daniel C. Roper, Secretary;  
Bureau of Foreign and Domestic Commerce, Claudius T. Murchison, Director

(Important—The statistics listed below have been prepared from statements by trade organizations and the trade press as of April 1, 1935. This Department cannot assume any responsibility for their accuracy. In the absence of official figures the following data do, however, show the magnitude of the motion picture industry in the United States.

## Industry's Investment

World capital investment.....	\$2,500,000,000
United States investment.....	2,000,000,000
Annual expenditures for insurance in United States .....	30,000,000
Theaters .....	90%
Production and distribution.....	10%
Approximate annual taxes paid by motion picture industry to Government.....	100,000,000

## Employment

Approximate number employed in industry in United States .....	270,000
(a) In production .....	28,000
(b) In distribution .....	8,000
(c) In theaters .....	234,000
(d) Extras placed in Hollywood daily .....	758
(e) Extras placed in Hollywood yearly .....	250,000
Hollywood's annual pay roll.....	\$75,000,000
Hollywood's weekly pay roll.....	1,384,000

## Exhibition

Average weekly attendance at movie theaters:	
1922—40,000,000	1928— 65,000,000
1923—43,000,000	1929— 95,000,000
1924—46,000,000	1930—110,000,000
1925—48,000,000	1931— 75,000,000
1926—50,000,000	1932— 60,000,000
1927—57,000,000	1933— 60,000,000
1934—70,000,000	
Approximate world attendance weekly.....	200,000,000
Feature films released in United States during 1934 .....	662
American .....	480
Foreign .....	182
Short subjects, practically all American.....	1,000
Estimated annual admissions in the United States 1934 .....	\$700,000,000
Estimate for 1935.....	715,000,000
Estimated annual film rentals .....	220,000,000
Average attendance per theater.....	500
Average daily receipts per theater.....	\$125.00
Average daily admissions per theater .....	.25
Average daily shows per theater.....	2.25
Average daily film rental per theater.....	25.00
Average daily receipts per show.....	50.00
Average daily attendance per theater per show .....	226
Average daily film rental per theater per show .....	10.00
Annual expenditure for theater accessories (new and replacement) .....	22,500,000
New theaters constructed in 1933-34, estimated .....	145
Total expenditure in theater construction in	

1929, 1930, 1931, 1932, 1933 and 1934.. 337,000,000  
Theaters, United States (Based upon Bureau of Census Survey, December, 1934).

Film and Vaudeville—10,143.

Legitimate—122.

Theaters, United States (Based upon Film Year Book, 1935, January 1, 1935).

Wired Theaters, 15,273; Closed, 1,887; Wired Open, Jan. 1, 1935, 13,386; Wired Open, Jan. 1, 1934, 12,574; Wired Open, Jan. 1, 1933, 12,480.

Theaters, United States (Based upon Film Board of Trade Estimates).

Total	Seating Capacity	Sound	Silent	Closed	Open
1932—20,100	10,767,411	14,805	5,295	5,350	14,750
1933—19,311	11,161,193	15,231	4,080	5,895	13,416
1934—18,371	11,028,950	15,652	2,719	4,635	13,736
1935—18,263	11,132,595	16,325	1,938	3,711	14,552
Capacity .....	9,719,531				

There is one motion picture theatre seat for every 13 inhabitants in the United States.

## Production

Studio capital investment.....	\$95,000,000
Estimated number of feature films produced, 1933-34 .....	480
Major producers .....	361
Independent producers .....	119
Estimated number of short subjects to be produced, 1934-35 .....	1,000
Estimated cost of production, 1933-34.....	\$119,000,000
Number of prints required for each feature.....	200-250
Cost per print .....	200
American pictures shown to the extent of the world's screen time.....	70%
Average negative cost of feature produc-	

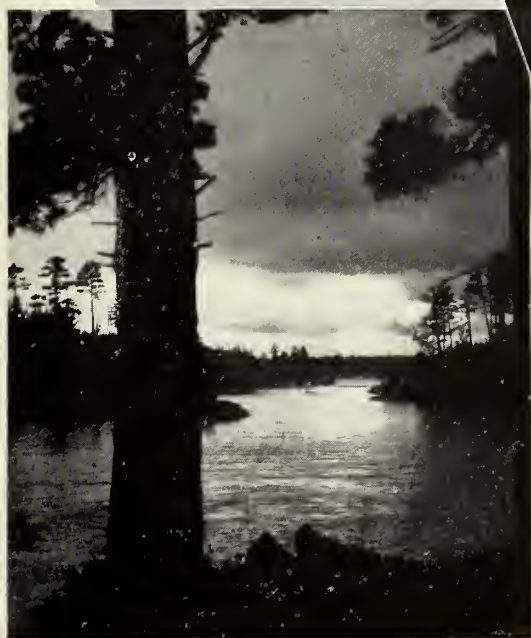
(Turn to Page 28)





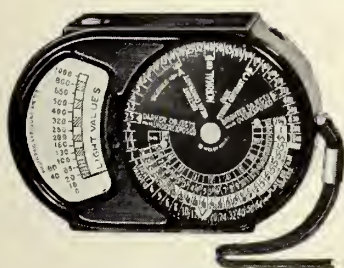
# PICTURES...

**YOU  
CAN'T  
RE-TAKE**



**Get *Every* treasured picture  
this summer.. others, too.. with  
a Weston Exposure Meter..**

What a satisfaction it is to come back with every one of those priceless snaps . . . truthful and life-like . . . perfectly exposed . . . even those chance shots under poor lighting conditions. Take a WESTON Exposure Meter with you. Then you are set for any condition. Every shot will be just as you want it . . . for the WESTON does more than give you just accurate "normal" exposures. Its exclusive coordinating dial provides at a glance the information you need for adjusting film density to the tone value you are after. You can get what you want with the WESTON. This summer, take a WESTON, instead of taking a chance with your exposures. See this proved meter at all leading dealers. Weston Electrical Instrument Corporation, 606 Frelinghuysen Ave., Newark, N. J.



THE WESTON UNIVERSAL MODEL  
EXPOSURE METER

# WESTON

## *Exposure Meters*



## MOTION PICTURE STATISTICS TO DATE

(Continued from Page 26)

tions—1934 .....	250,000
Average time for photographing a feature..	22 days
Expenditures for supplies and other require- ments .....	120,000,000
Language markets in order of importance: English, Spanish, German, French.	

Production volume in the United States compared  
with world production:

Estimated by volume .....	65%
Estimated by value .....	85%
American motion picture exports, 1933-34.....	8,905

American motion picture exports, 1933-34:

1933	
Negative Sound .....	9,881,811 ft. \$ 469,094
Negative Silent .....	3,157,955 ft. 141,715
<hr/>	
	13,039,766 ft. \$ 610,809
Positive Sound .....	147,696,004 ft. \$2,890,436
Positive Silent .....	3,801,475 ft. 78,772
<hr/>	
	151,497,479 ft. \$2,969,208

TOTAL .....	164,537,245 ft.	\$3,581,017
1934		
Negative Sound .....	9,021,753 ft.	\$ 380,555
Negative Silent .....	2,420,156 ft.	109,719
<hr/>		
	11,441,909 ft.	\$ 490,274
Positive Sound .....	179,658,020 ft.	\$3,644,416
Positive Silent .....	3,333,055 ft.	78,979
<hr/>		
	182,992,075 ft.	\$3,723,395
TOTAL .....	194,433,984 ft.	\$4,213,669

Number of different industries, arts and professions involved in making a motion picture .....	276
Feature film production in Europe, 1934....	600
Estimated cost of European production.....	\$40,000,000
Approximate amount of all type of motion picture film manufactured and used an- nually—linear feet .....	2,000,000,000

Our friend and brother, William Fraker, passed on,  
April 10, 1935. Most sincere sympathy is extended to his  
bereaved family.

## CANDID M. P. CAMERAMEN

Hap Depew is back at Hal Roach Studio with his old pal,  
Art Lloyd.

Leon Shamroy once more draws the assignment on Silvia  
Sidney's new picture.

Harvey Gould has left the ranks of assistants and is now  
shooting first for Willis Kent.

The Motion Picture Relief Association is the friend of the  
cameraman. Don't forget to give it your support when you are  
able.

Bob De Grasse was highly commended in the Hollywood  
Reporter for his fine work on the latest Katherine Hepburn  
picture.

Len Powers has risen above cameraman and is now pro-  
duction manager on Mort Conn productions at the Talisman  
Studio.

Dave Abel is at RKO on "Top Hat," once more associated  
with Director Mark Sandrich, with whom he collaborated on  
"Gay Divorcee."

Lee Garmes, who received such fine mention in the New  
York Times and Time Magazine, for his splendid work on  
"Scoundrel," is back among us.

Dewey Wrigley is at Annapolis for Paramount. (These sev-  
eral companies now on location at Annapolis, may be photo-  
graphing each other without knowing it.)

Sol Polito, who will be remembered for his fine work on  
"Flirtation Walk," has been sent to Annapolis by Warner First  
National. His own crew, consisting of Al Green, Frank Evans  
and Lewis De Angelis accompanied him.

John L. Herrmann, one of the heroes of the recently returned  
Byrd expedition, had no more than arrived in Hollywood than  
he was draughted to accompany the U. S. Fleet on the war  
games in the North Pacific. He was aboard the U. S. S. Min-  
neapolis where he was accorded the courtesy of admiral's quar-  
ters during the cruise.

Archie Stout has signed a contract with Harry Sherman  
to photograph all of the big Westerns that are to be program pic-  
tures for Paramount. Between Monogram and Harry Sherman  
productions Archie should be kept so busy that he won't be  
able to take any boat rides to Catalina this summer.

The sympathy of members of Local 659 is extended to John  
McHenry on the recent loss of his father.

## THE FILTER WIZARD

Geo. H. Scheibe, photo-filter specialist, says the filter  
business has been good for eighteen years. He reports an  
order of twenty-six shipped to Moscow, Russia, and  
others to Sweden, London, Buenos Aires, Melbourne,  
Auckland and Sidney. Filters have been recently shipped  
to Kobe, Japan and to Hongkong, China. Cairo, Egypt is  
the latest order received and now almost every country is  
using them.

Hot-Spot Irises are the thing for eliminating the hot-  
spot on the process screen. Every studio seems to work  
differently on the process as Mr. Scheibe has been making  
different sizes of hotspots for them. They do their work  
in every instance. It is used on the projector and the  
center of the screen is covered with a delicate color so as  
to eliminate the hotspot entirely. The screen is even  
from end to end.

Diffusing screens are as popular as ever. They are used  
in many shots from a process shot eliminating grain with  
the 1/64 and so on down the line with any type of dif-  
fusion wanted. On straight shots they are very much in  
use in every studio. They play a part in almost every  
scene. They are even diffusion from any point of view as  
they are made in ten different types. Variable diffusion  
can be used in the matte-box. This type of diffusion is  
used on dolly shots. Many beautiful shots have been  
made with the variable diffusing screen.

The Monotone Filter is coming to the front lately  
with the Monocle and the 1-inch round for the focusing  
tube on the camera. They show absolutely what the cam-  
eraman is going to get on the screen; no guesswork  
about it.

The Fog Filters are holding their own since 1916 when  
Mr. Scheibe put out the first one of this series. They  
are steady in sales and so are his Graduated Filters.

Scheibe's FILTERS

In World-Wide Use

produce Moonlight and Night  
Effects in Daytime-Fog Scenes-  
Diffused Focus, and many other effects  
With any Camera - In any Climate

**George H. Scheibe**  
ORIGINATOR OF EFFECT FILTERS  
1927 WEST 78TH ST. LOS ANGELES, CAL.

SINCE 1916

HOLLYWOOD  
STUDIOS  
USE THEM  
IN EVERY  
PRODUCTION

## 16 mm RECORDING 16 mm

INDUSTRIAL — PERSONAL — COMMERCIAL

We use the double system—the only successful method.

\* Reductions from 35mm to 16mm and other laboratory and techni-  
cal facilities.

## INDUSTRIAL CINEMA ARTS

FEDERAL 5913

1205 N. ALVARADO ST.

HOLLYWOOD, CALIF.



---

# EXTRA SPEED

---

SUPER X "Pan" is much faster than regular Super Sensitive. Under normal conditions its extra speed gives definitely better shadow detail...general improvement in quality. And under adverse light it often means certain success instead of probable failure. Combining this great speed with startling fineness of grain, Eastman Super X marks a substantial advance in motion picture photography. Eastman Kodak Company, Rochester, N.Y. (J. E. Brulatour, Inc., Distributors, New York, Chicago, Hollywood.)

---

## EASTMAN *SUPER X*

### PANCHROMATIC NEGATIVE

# INTERNATIONAL CLASSIFIED ADVERTISING

Brings results—Rates 45 cents per line—minimum charge one dollar per insertion. For Rent—For Sale—Wanted—For Exchange, etc.

## FOR SALE AND RENT—CAMERAS

**FOR SALE OR RENT**—Mitchell and Bell & Howell silenced cameras, follow focus. Pan lenses, free head, corrected new aperture. Akeley, De Brie, Pathe, Universal, Prevost, Willart, De Vry, Eyemo, Sept, Leica. Motors, printers lighting equipment. Also every variety of 16 mm. and still cameras and projectors. B & H Cameras with old type shuttles silenced \$150. Everything photographic bought, sold, rented and repaired. Send for our bargain catalogue. Hollywood Camera Exchange, 1600 Cahuenga Blvd. Phone HO. 3651. Cable, Hocamex.

**EDUCATIONAL CAMERA BLIMP** and Dolly for Mitchell Camera follow focus device, geared free head, three wheels, pneumatic tires, cost \$1250.00, special \$500.00. Hollywood Camera Exchange, 1600 Cahuenga Boulevard, Hollywood, Calif. Cable HOCAMEX.

**GENUINE BELL & HOWELL** 1000 foot magazines in excellent condition \$50.00 each. Four hundred foot magazines \$25.00 each. Four hundred foot Mitchell magazines \$25.00 each. Cases for above \$10.00 each. Hollywood Camera Exchange, 1600 Cahuenga Boulevard, Hollywood, Calif. Cable HOCAMEX.

**USED SINGLE SYSTEM CAMERA** and Sound Equipment. \$650. Complete except batteries. Camera Dept., Moviesound Company, Jamaica, Long Island.

## FOR SALE—CAMERAS AND EQUIPMENT

**DUPLEX PRINTER**, Mitchell 400-ft. magazines, Mitchell tripod legs, No. 5 strand 60" flexible shaft; 2" F:2 Cooke lens; 3" F:2.5 Cooke lens; 4 1/4" F Cooke Kinic lens in mounts for B & H or Mitchell cameras, also other miscellaneous equipment. Ed Estabrook, 430 North Flores St., Hollywood, Calif. ORegon 5003.

**REAL BARGAINS** in 16 and 35 mm. movie equipment and still cameras. Newest types cameras and projectors in all popular makes. Save money on film, lights, lenses and all essential accessories. Our 36 years of experience stands back of every sale. Before you buy, send for our new bargain booklet. Burke & James, Inc., 223 W. Madison St., Chicago.

**LIKE NEW**, Educational Camera Blimp, geared free head, follow focus device and three-wheel dolly. Cost \$1250.00. Our special \$500.00. Hollywood Camera Exchange, 1600 N. Cahuenga Blvd., Hollywood, Calif.

**MITCHELL CAMERA**, very quiet steel gears, 3 Pan Tachar lenses, free head, complete studio equipment, excellent condition, \$1300. CAMERA SUPPLY CO., LTD., 1515 North Cahuenga Blvd., Hollywood.

**BELL & HOWELL CAMERA HEAD**, 170 degrees, three lenses, B & H tripod legs and head, beautiful condition, \$750. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

**BELL & HOWELL** and Eyemo Cameras, Lenses, Magazines, Tripods, Moviolas, Splicers, all kinds of Sound and Laboratory equipment. Eastman and Dupont spliced negative, tested and guaranteed, 2 1/2¢ per foot, on daylight loading rolls, \$2.75. Inquiries invited. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood.

**MITCHELL CAMERA**—Like new and guaranteed—silenced Academy aperture, Pan Tachar lenses, free head tripod, 1000 ft. magazines, complete \$2000.00. Hollywood Camera Exchange, 1600 No. Cahuenga Blvd., Hollywood, Calif.

**230 DEGREE SHUTTER** Akeley Camera, N134, special focus on film attachment. 2", 4", 6", 12" lenses. Four 200 foot magazines, Akeley tripod, cases. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**BELL & HOWELL** No. 999 silenced unit 1 shuttle prism focus through film, 40, 50, 75 mm. Cooke F:2.5 lenses mounted. Two 1000 foot magazines, tripod, finder and sunshade. Original factory job like new. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**NEW TYPE SUPER PARVO DeBRIE** ultra silent with built-in motor, automatic dissolve, pilot pins, anti-buckling device. Four 1000 foot magazines, DeBrie friction tripod, finder, all accessories. Latest type equipment like new. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

## SOUND RECORDING

**LIKE NEW ARTREEVES** portable double sound recording outfit, with two microphones, Bell & Howell silenced camera, complete in every detail, a real bargain. Price \$3500.00. Recorder without camera, \$2250.00. Hollywood Camera Exchange, 1600 Cahuenga Blvd., Hollywood, California. Cable: HOCAMEX.

**ART REEVES**, latest model 1935, double system sound recording installation, factory guaranteed, Automatic Speed Control Motor, Twin Fidelity Optical Unit, Bomb microphone, the only genuine, modern, workable ArtReeves equipment for sale in Hollywood outside factory. Price, complete in every detail, \$2,400. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

**FOR SALE**—Mitchell tripod friction head—good as new. \$150. Box Z, International Photographer.

**SOUND MOVIOILA MODEL UD**, price \$275. Variable area type sound recording system complete, \$4.25. Boye, 846 Seward St., Hollywood, Calif. HI. 1660.

**SOUND MOVIOILA MODEL UC**, like new, \$450.00. Moviola Silent Viewing Machine, Model C, with variable speeds, \$125.00. Hollywood Camera Exchange, 1600 Cahuenga Blvd., Hollywood, California.

## FOR RENT—CAMERAS

**TWO THOROUGHLY** silenced Mitchell cameras. Follow focus device, Pan Astro lenses, Freehead—1000 ft. magazines. J. R. Lockwood, 523 No. Orange St., Glendale. Douglas 3361-W.

## THE INTERNATIONAL PROJECTIONIST

**THE INTERNATIONAL PROJECTIONIST**, a monthly magazine published in the interests of the projectionist. Interesting, instructive. Yearly subscription U. S. and possessions, \$2; foreign countries, \$2.50. James I. Finn Publishing Corp., 1 West 47th St., New York.

## WANTED TO BUY

**MOTION PICTURE**—Still Picture—Laboratory and Cutting Room Equipment—Lenses—Finders—Tripods. Highest prices paid. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood, Calif.

**WANTED**—Golf clubs and bag. J. R. Lockwood, 523 North Orange St., Glendale. Phone Douglas 3917.

**WILL PAY CASH FOR:** Bell & Howell, Mitchell, Akeley or De Brie Cameras, lenses, motors, parts and accessories. Motion Picture Camera Supply, Inc., 723 7th Ave., New York. New York.

## CAMERA REPAIRING

**BELL & HOWELL** cameras with old type shuttles silenced, \$150. Hollywood Motion Picture Equipment Co., 645 No. Martel Ave., Hollywood.

**VERY POWERFUL FLOODLIGHTS** of new design. Will burn through a 1000 W. Rifle with Cable—\$5.00. With 12 foot collapsible Stand—\$20.00. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

**MITCHELL MOTOR**—1000 ft. Mitchell magazines. J. R. Lockwood, Glendale. Douglas 3361-W.

**FOR SALE**—75 mm. Cooke Lens. F.2 in Mitchell mount complete. 50 and 75 mm. Astro lenses, mounted and unmounted. J. R. Lockwood, 523 North Orange Street, Glendale. Douglas 3361-W.

**BUYERS READ** these classified advertisements as you are now doing. If you have something for sale or exchange—advertise it in these columns. THE INTERNATIONAL PHOTOGRAPHER, 1605 No. Cahuenga Ave., Hollywood.

**FOR RENT**—25 and 35 mm. lenses, motor adapters, Mitchell Standard tripod head, baby tripod, 400 ft. Mitchell magazines. J. R. Lockwood, 523 North Orange St., Glendale, Douglas 3361-W.

## POSITION WANTED

**DO YOU WANT A CAMERAMAN** who is an expert on studio production; or an expedition cameraman who knows every corner of the world; or a cameraman who thoroughly understands the making of industrial pictures; or an expert newsreel photographer; or an expert color cameraman? A limited number of cameramen, backed by years of experience, are available. Write stating your requirements and we shall be glad to assist you in choosing the kind of cameraman you want. INTERNATIONAL PHOTOGRAPHER, 1605 North Cahuenga Ave., Hollywood.

## MISCELLANEOUS

**COMPLETE COURSE IN FLYING**—If interested in aviation, see Roy Klaffki, 1605 North Cahuenga Ave., Hollywood.

**WANTED**—To know of the whereabouts of motion picture relics, documents, or equipment of a historical nature for Museum purposes. Write Earl Theisen, care of International Photographer, 1605 Cahuenga Ave., Hollywood.

**THE NEW YORK PUBLIC LIBRARY**, Office of the Director, New York City, would like to procure the following old issues of INTERNATIONAL PHOTOGRAPHERS—all of 1929; January to October of 1930; and November and December for 1931. It will be appreciated if anyone having these numbers will communicate with us or with R. J. Lingel of the New York Public Library.

**WANTED: ONE, TWO OR THREE REEL SUBJECTS** for foreign distribution. Would consider a few six to eight reel features. Will positively NOT consider financing any unfinished subject or sounding silent film. State briefly what you have to offer in first letter. On those subjects that are acceptable a small cash advance will be made. Address Box 142, International Photographer.

**COMBINATION TITLE BOARD** and Animation Table, with lathe bed and carriage mounted on bench. Operates in vertical or horizontal position. Can be used for optical printing, special, \$150.00. Hollywood Camera Exchange, 1600 Cahuenga Blvd., Hollywood, California.

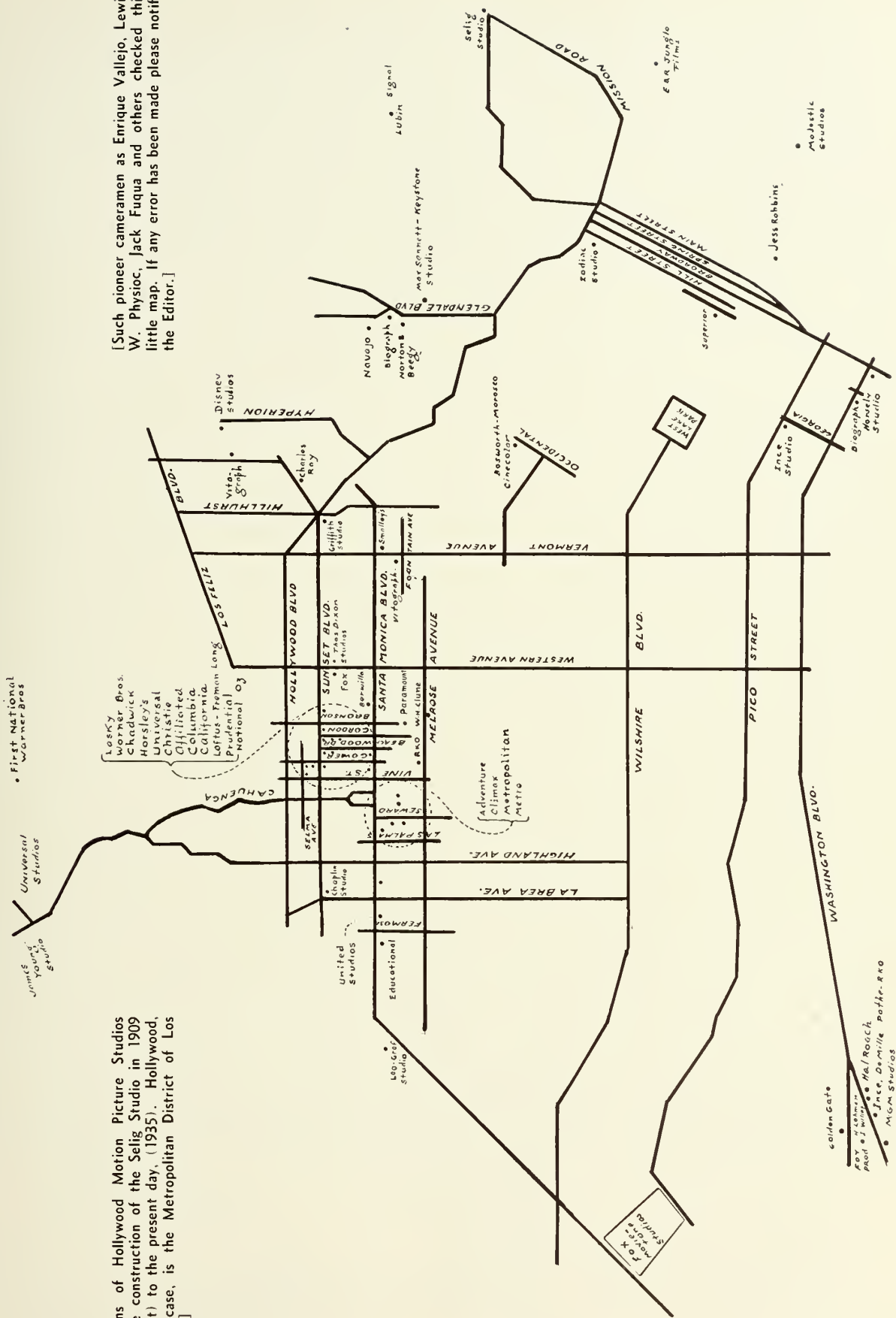
Please mention The International Photographer when corresponding with advertisers.



# THE CRADLE OF THE CINEMA IN THE WEST!

[Locations of Hollywood Motion Picture Studios from the construction of the Selig Studio in 1909 (the first) to the present day. (1935). Hollywood, in this case, is the Metropolitan District of Los Angeles.]

[Such pioneer cameramen as Enrique Vallejo, Lewis W. Physioc, Jack Fuqua and others checked this little map. If any error has been made please notify the Editor.]



# CINEMACARONI

By ROBERT TOBEY

(With sauce for those who like it.)



## HOLLYWOOD HONEYMOON

(A novel novel of a thousand and one nights in a daze)

by  
R. Thritis

Here they are, folks, lined up for you all to see. Put your money down before the race begins. Bet 'em high and sleep in the streets!

The Characters:

Lili Liverblossom  
Perriwether Murgle  
Hiram von Willeze  
Willy Nilly  
Bill

Synopsis of preceding chapters:

Lili Liverblossom, bright particular star (well, particular anyhow) of Flamboyant Films, Limited, is among the etc., etc., etc., etc.

If you want to know what all the etkas stand for, just buy up a few back issues and read yourself hoarse.

## CHAPTER VIII

### Lili Ghost to the Window

For a minute Lili was a little irked. Bill had actually hung up the phone on her, Lili Liverblossom, and that was unpardonable. But Bill was like that. He was just as likely to hang up before he even phoned one, mused Lili, only she mused it with slightly different phraseology. She continued to chat into the phone a few minutes, so Bill wouldn't know she knew he had snubbed her, and then hung herself up—I mean hung up herself. Besides, she had to be nice to Bill, as he had written up a ghost especially for her, and no telling what he might write up if she weren't nice to him.

Bill had said he would send the ghost right over and Lili was to close all the doors and windows so that the ghost could get in.

It was an unholy night anyhow—the wind was whistling outside, now and then humming to itself for variety—probably taking a bath. An owl hooted in a nearby tree, two trains ran head-on into each other a few blocks away, an airplane with 96 passengers crashed in the back yard, three men were hanging from a tree outside, and all in all it was an eerie evening.

Lili sat by the fire, pondering all this, worrying about Perri, waiting for something to happen. She nervously plucked at the cat's tail as she waited—it was the only thing left to pluck at, as she had long ago pulled all the rest of the cat's fur out, and pulled all the bristles out of the eleven hairbrushes she owned, as well as the forty-six others she was buying on time.

Across the room, one window was still slightly ajar. Heeding Bill's warning, Lili decided to get up to close it. Besides, it was pretty cold that night in Hollywood, as the Chamber of Commerce was taking a few weeks off. As she sat there deciding, she looked fixedly at the window. Lili's hair stood on end. The few hairs left on the cat's tail stood on end, too. Gradually a formless shape was shaping formlessly there in the window. Lili stared harder. This is what she saw:



Horror-stricken, scarcely believing her eyes, Lili staggered to the door.

(What would YOU do if you saw what Lili saw? Do you think Lili will do it? See next month's exciting installments.)

As a charity donation, please send ten cents to the person at the top of the list.

## TODAY'S ENIGMA

What do you make of this inter-office communication, or does it matter?

Bob:

Prop room cannot get Wooden Indian for you. Walt.

## KNEE-CAP REVIEW

(No space left on my thumb-nails)

Costume pictures almost always contrive to be terribly boring to me, but after the first few minutes of "Richelieu," I completely forgot costumes in the enjoyment of George Arliss' performance as the clever Cardinal. Arliss is amazing with his punctilious rendition of character parts, and he is ably supported in this film. No matter how you pronounce it, "Richelieu" is an interesting picture. And goodness, how they do pronounce it! Almost everyone in the cast gave the word a different pronunciation. I heard a couple of versions I'd never thought of. Anyhow, no matter how you pronounce it, go to see the picture. I? I pronounce it—excellent!

The chain letter craze is so bad in Hollywood, most of the chain stores are putting on extra help.

Please send a quarter to the person at the top of the list.

THE MACARONI BOWL, by the Shovel Boys (they dish the dirt.) \* \* \* Charles Laughton's

hair is just growing in after having it shaved for a recent picture, and right now it is at that "awkward age." The other day he went over to visit his two friends, Ern and Perc Westmore, in their beauty parlor on Sunset Boulevard. Ern and Perc got Laughton into a barber's chair and practically scared him pink by pretending they were going to trim his still scanty locks. Some fun. \* \* \* Mary Carlisle is the latest screen star to fall for the leather fashions Voris creates. \* \* \*

Latest chuckles from the theatre marquees:

THE BEST MAN WINS  
A WICKED WOMAN  
LIFE BEGINS AT FORTY  
and EIGHT BELLS

THE WEDDING NIGHT  
LOVE IN BLOOM

I'VE BEEN AROUND  
PRINCESS O'HARA

SWEET MUSIC  
IN SPITE OF DANGER

Send a dollar to the person at the top of the list.

I'd like to swap jobs with Bill Powell right now. He is playing the title role in "The Great Ziegfeld," and all he has to do is pick good-looking chorus girls. Bill does all right in real life, anyhow, and doesn't have to imitate the great Ziegfeld to do some 100% picking on his own hook.

Please send the person at the top of the list to me.

FRANK C. ZUCKER

J. BURGI CONTNER

## Motion Picture Camera Supply, Inc.

now has the Largest Stock of New and Used Modern Camera Equipment and Accessories of any Camera Supply House in the World!

### NEW MITCHELL SOUND CAMERA NOW ON DISPLAY

We sell Simplex Portable 35mm Sound Projectors, Moviolas—also new and used Mitchell, B. & H., Akeley, DeBrie Cameras and Equipment.

Regardless of your requirements, whether you want to buy or rent new or used equipment—call us for a quotation.

We only sell equipment that is thoroughly guaranteed.

Phone, write, wire or cable for quotations.

Eastern Representatives  
MITCHELL CAMERA CORPORATION  
HARRISON FILTERS  
FEARLESS PRODUCTS

## MOTION PICTURE CAMERA SUPPLY, Inc.

725 Seventh Ave., New York City

Telephone BRyant 9-7755

Cable Address: Cinecamera





**T**HE industry needed a finer-grain film. Agfa made it—the new, improved SUPERPAN negative. Test it—for fineness of grain and everything else you've wanted in the ideal supersensitive panchromatic film. Made by Agfa Anasco Corporation in Binghamton, N. Y.

**C. KING CHARNEY, Distributor**

**HOLLYWOOD**  
6372 Santa Monica Blvd.  
Tel. Hollywood 2918-2919

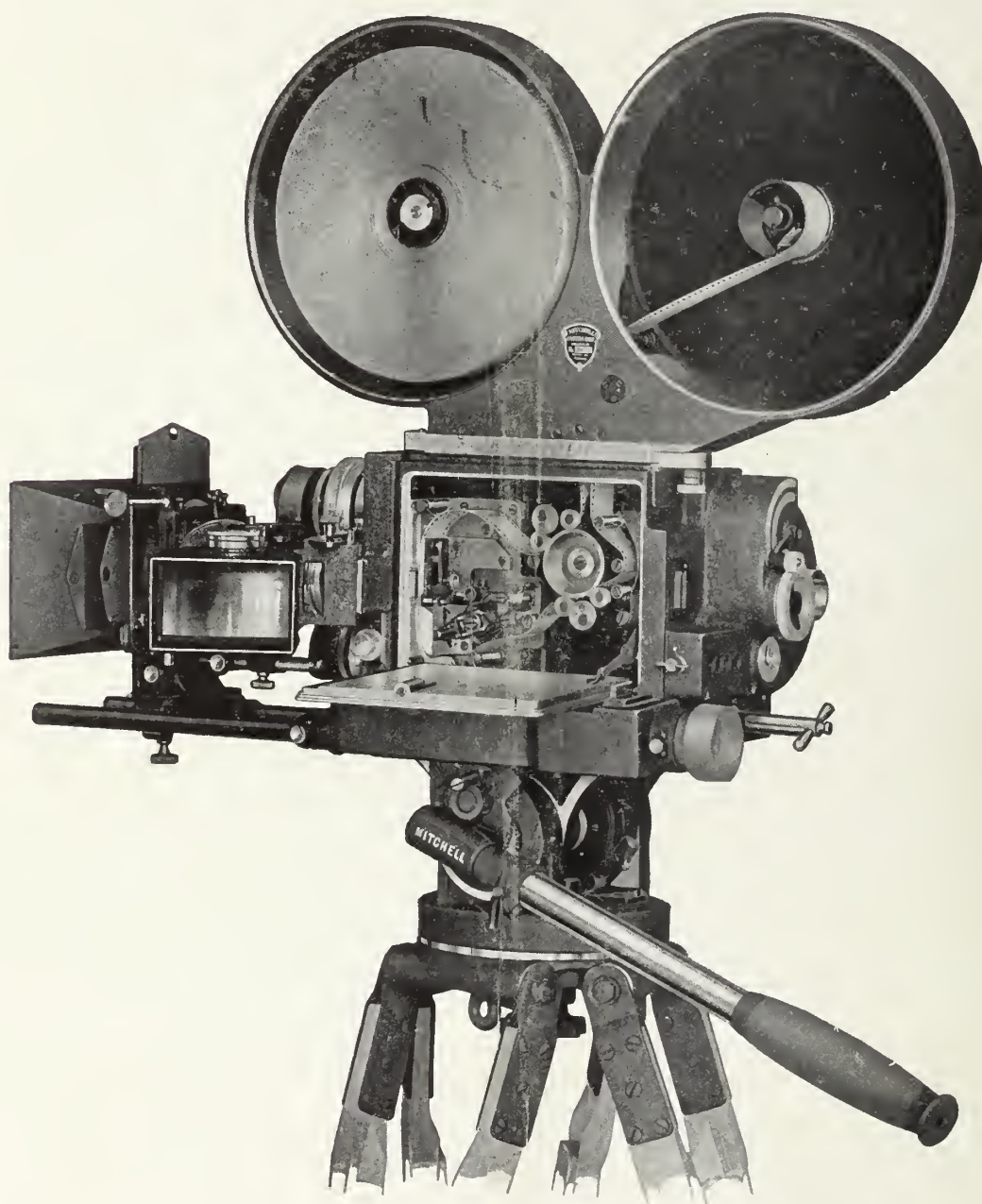
**NEW YORK**  
245 West 55th Street  
New York City

# Quiet Please—

## The MITCHELL Sound Camera Meets This Requirement of Production Units.



MR. ART REEVES.  
645 NORTH MARTEL AVENUE.  
LOS ANGELES, CALIFORNIA.



### MITCHELL CAMERA CORPORATION

665 N. ROBERTSON BOULEVARD  
WEST HOLLYWOOD, CALIF.

Cable Address "MITCAMCO"

Phone OXford 1051

#### AGENCIES

Motion Picture Camera Supply, Inc.,  
New York City, N. Y.

Cland C. Carter,  
Sydney, Australia

John H. Taylor,  
London, N. W. 1, England

D. Nagase & Co., Ltd.,  
Osaka, Japan

Bombay Radio Co., Ltd.,  
Bombay, India

Arminio Conti,  
Rome, Italy



# INTERNATIONAL PHOTOGRAPHER

HOLLYWOOD

FIFTH YEAR

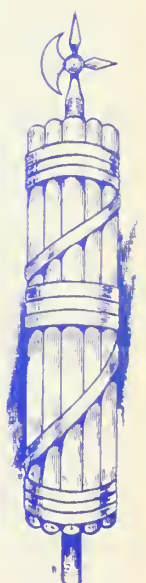
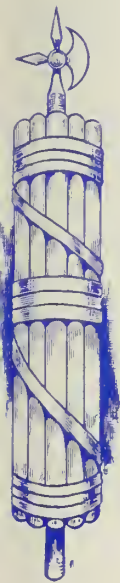
JULY, 1935

VOL. 7  
No. 6



*Still by John L. Herrmann.*

The fan-tail of the U.S.S. Cruiser Minneapolis, the newest of the 10,000-ton class called Treaty Cruisers. Home of Brother John L. Herrmann, Newsreeler, during the recent War Games of the U. S. Navy. Notice the aeroplane catapults on either side with planes stowed.



CENTS  
A COPY

MOTION PICTURE ARTS AND CRAFTS

# THE BIG FOUR CHARACTERISTICS

- 1 CORRECT COLOR BALANCE
- 2 DESIRED CONTRAST . . . .
- 3 FINENESS OF GRAIN . . . .
- 4 SAFE DEGREE OF LATITUDE AND SPEED

*Always found in . . .*



REG. U.S. PAT. OFF.

## PANCHROMATIC NEGATIVE

### DU PONT FILM MANUFACTURING CORPORATION

35 WEST 45<sup>TH</sup> STREET  
NEW YORK CITY  
PLANT . . . PARLIN, N. J.

SMITH & ALLER LTD.  
6656 . . SANTA MONICA BLVD.  
HOLLYWOOD, CALIFORNIA

THE  TRADE MARK HAS NEVER BEEN PLACED ON AN INFERIOR PRODUCT





# YOSEMITE FALLS

Photo by Harry Blanc.

*Returning Cameramen Say That There Is More Water in the Valley Than Ever Before*

# INTERNATIONAL PHOTOGRAPHER

MOTION PICTURE ARTS AND CRAFTS

Vol. 7

HOLLYWOOD, JULY 1935

No. 6

SILAS EDGAR SNYDER, *Editor-in-Chief*

EARL THEISEN and CHARLES FELSTEAD, *Associate Editors*

LEWIS W. PHYSIOC, FRED WESTERBERG, *Technical Editors*

HELEN BOYCE, *Business Manager*

A Monthly Publication Dedicated to the Advancement of Cinematography in All Its Branches; Professional and Amateur; Photography; Laboratory and Processing, Film Editing, Sound Recording, Projection, Pictorialists.

## CONTENTS

Front Cover Still by John L. Herrmann

FRONTISPIECE, Mr. Harry Blanc	
THE MINIATURE CAMERA PICTORIALISTS	3
By Hansena Frederickson	
PICTURING THE UNPICTURED WITH THE LEICA	4
By John W. Vandercook	
A CRUISE WITH THE BLACK FLEET	6
By S. del S.	
MOTION PICTURE SOUND RECORDING, CHAPTER XX	7
By Charles Felstead	
OUR KINDERGARTEN MOVIE	8
By Marie Hoyer Thorngquist	
MINIATURE CAMERA PHOTOGRAPHY	10
By Augustus Wolfman	
HOLLYWOOD AT SAN DIEGO EXPOSITION	12
By Earl Theisen	
CHINA IS ON THE WAY	13
By C. R. Sinner	
SPRING CONVENTION S. M. P. E. 1935	15
PUTTING LIGHT WHERE THE CAMERAMAN WANTS IT	16 & 17
By Elmer C. Richardson	
MAKING THE MOST OF EXPOSURE	18
By Herbert C. McKay	
SOME PROBLEMS IN THE DIRECTION OF COLOR PICTURES	20
By Rouben Mamoulian	
THE RETURN OF WESTERBERG'S TABLES	24
By Fred Westerberg	
BELL & HOWELL ANNOUNCES 8 mm. CAMERA	26
CINEMACARONI	27
By Robert Tobey	
COVERED CAMERA DAYS	29
By H. Lyman Broening	
CLASSIFIED	30
RECENT PHOTOGRAPH AND SOUND PATENTS	31
By Robert Fulwider	
OUT OF FOCUS	32
By Charles P. Boyle	

Entered as second class matter Sept. 30, 1930, at the Post Office at Los Angeles, California, under the act of March 3, 1879.

Copyright 1935 by Local 659, I. A. T. S. E. and M. P. M. O. of the United States and Canada

Office of publication, 1605 North Cahuenga Avenue, Hollywood, California  
Gladstone 3235

James J. Finn, 1 West 47th St., New York, Eastern Representative  
McGill's, 179 and 218 Elizabeth St., Melbourne, Australian and New Zealand agents.  
Subscription Rates—United States and Canada, \$2 a year. Single copies, 25 cents.

This Magazine represents the entire personnel of photographers now engaged in professional production of motion pictures in the United States and Canada. Thus THE INTERNATIONAL PHOTOGRAPHER becomes the voice of the Entire Craft, covering a field that reaches from coast to coast across North America.  
Printed in the U. S. A. at Hollywood, California



80 I.P.U.  
SERVICE ENGRAVING CO

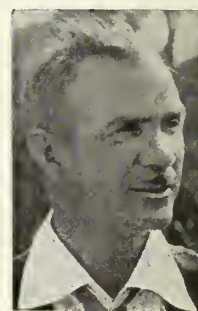


## Our Program For August GETS ALL THE COLORS

THE INTERNATIONAL PHOTOGRAPHER has big color news for the August issue. Our reporter has ferretted out a story about a new process which is even now going places in the commercial world and has deliberately kept out of Hollywood—a successful color process whose inventor and sole owner has so much business he doesn't want publicity. It may be said here that the new process is getting ALL THE COLORS—that it is simple and absolutely new. Is this news?

## ENGLISH AND METRIC LENS FOCUS TABLE

Paul R. Harmer, contributing editor of THE INTERNATIONAL PHOTOGRAPHER, will reappear in our editorial family as the computer of a series of lens focus tables in both Eng-



lish and Metric measure. The work has been most arduous. More than six months time has been devoted to the task. The tables, thirty of them, will be published at one time and no extra charge will be made. They will be a gift to all cameramen by Mr. Harmer and this magazine.

## HORATIO W. LAMSON

If the reader desires to know something about slow motion he will be glad to read an article by the above named writer, Mr. Horatio W. Lamson. "Superspeed Motion Pictures" will be the title of his article. It will be illustrated by three or more cuts.

## OUR FEATURE WRITERS

Earl Theisen, Charles Felstead, Karl Barleben, Jr., F.R.P.S., Augustus Wolfman, Charles P. Boyle, Bob Tobey and Harry B. Lubcke will be represented in our columns with special articles—the brightest galaxy on one magazine in Hollywood.

Miss Nina Brownrigg will tell a charming yarn about a day spent at home with her camera. Don't miss it.

Fred Westerberg will be with us again with his magic Cinematographer's Tables and something else besides.

Lewis W. Physioc will be back in the magazine with a story on lighting if his engagements will not prevent. When Mr. Physioc writes it is an event.

Miss Hansena Frederickson of "The Miniature Camera Pictorialists" who makes her debut in this issue will be with us again in August. It will be worth your while to read her offering.



# The Miniature Camera Pictorialist

By HANSENA FREDERICKSON



**B**EFORE I knew what "Miniature" really meant, The Leica and Contax fascinated me. Such clear, beautifully distanced, and rounded photographs coming from such a small negative or even a portion of such a film, seemed incredible. Various friends of mine had taken the subject up seriously (as one must do, if at all) and had won recognition here and there with their work, or merely enjoyed showing the results to their friends—but all of them were men, so it didn't enter my head that the field could be open to women.

Finally, in following one friend on many picture-taking expeditions, watching him develop and print his pictures, the sudden realization came to me that I could join the ranks. It was complicated, yes, but not so much so that, taken step by step, I couldn't master it. When I actually improved in four months to the point where I could win a place in a camera club, the spark was set off to such an extent that I now have a fully equipped dark room—and no salary left after the first of the month. The club to which I belong is the Miniature Camera Pictorialists of Los Angeles, who meet in Westwood Village once a month and exhibit prints upon which the members vote and which they criticize. The fern print reproduced here placed second in the May exhibit.

I have played around with a kodak all my life: Each time I had a new one the negatives were smaller, but I felt handicapped because I couldn't get every picture that

I saw; it was often too far away, too cloudy a day, or too much movement—so I would sigh and wish, and do nothing about it. Often I would see something that I wanted to paint, and even though water color is a relatively rapid medium compared to some other arts, still I seldom had three or four hours at the right time and place to preserve the picture I saw. I tried snapshots, but they were atmospherically inadequate; sketches were incomplete—so usually was the picture—now with by Leica and super-sensitive or fino-pan film I can preserve the mood, distance, time of day, shadows, and relative values with a few seconds work. Many times the Leica comes to my rescue. I have a negative as a result that I can enlarge to any desired size and paint my picture from accurate memory, memory assisted by the pictured facts.

Photography as an expression of beauty in itself has made possible the preservation of many beautiful scenes that can later be enlarged and printed so as to best present the mood of the moment. The possibilities of various papers, developers, processes and combinations are so myriad that the field could not possibly be exhausted in a lifetime.

As an expression of one's own feelings for beauty, as a means of entertainment to oneself and one's friends, and as a fascinating research in a world tenanted by others who feel that unmistakable bond of friendship—camera craft is invaluable in helping one to lead a full and expressive life.



Some charming shots taken around Southern California by Miss Frederickson with her miniature camera.

Please mention The International Photographer when corresponding with advertisers.



# Picturing the Unpictured With the Leica

By JOHN W. VANDERCOOK

(Author of "Black Majesty," "Tom Tom," "The Fools' Parade," "Forthy Stay In," "Murder in Trinidad," etc.)



HE photographing of that large, dark and highly various portion of mankind vaguely called "Natives," presents, I have discovered in some eight years of doing it, some special problems . . . But then, so does the photographing of natives of paler places, such as, for example, France and England and the U.S.A. Often there are strong resemblances. But there are differences, too.

The rude snapping of an unwilling victim in New York may conceivably result in a cracked camera, or, in advanced cases, in an indented skull. But the prejudice will at least be personal, not pious.

In hotter lands, cameras are sometimes regarded as surprisingly and dangerously significant. Wandering picture-takers should inquire with care.

Some years ago in the interior of Dutch Guiana, I did a very frightful thing—unconsciously—and nearly paid for it . . . My wife and I were traveling by foot and by canoe among the Bushnegro. The Bushnegroes, though they have retained the primitive African culture they brought with them to South America in long past days of slavery, have just sufficient contact with the outside world to know at least something of the nature of a camera. Though they were not particularly enthusiastic about it and though, thank heaven, they eschewed the all-too-common trick of "posing" in a grinning, rigid line, no objections had been raised to my making more or less of a record of their doings. They gathered that I did something or other with a small black instrument (LEICA) and thereby produced some sort of image of their large black selves . . . Then, one afternoon on the riverbank, I took a picture of a baby sleeping in its mother's arms.

The child's father was standing near and it chanced he had a long cane-knife in his hand. As my LEICA clicked, he let go. It was my good fortune that his aim was poor. The eighteen-inch blade whizzed past my ear an inch or two away and I was given a chance for rapid and profuse apologies.

It developed that I had tried to murder the man's baby. His defense of it was wholly right . . . according to Bushnegro rules. When a child is sleeping, they believe, its soul, its double, its image, is no longer securely in the body. Therefore, by taking a picture I was capturing that soul-double on the film inside my box. It is literally and strangely true that if I had not succeeded in convincing them that they were mistaken, that I had just been making clicking noises for the fun of it and had actually not taken a picture, the baby might very well have died. Conviction, down there under the close sun, has an immense and curious force.

Such a resentful attitude toward picture taking is, however, comparatively rare among primitive peoples. Most of them fall roughly into two classes: those who adore being "shot" and go in for horrible stiff posing; and those, farther from the trodden roads, who have no idea at all of cameras and are therefore quite un-self-conscious.

Naturally, the second type is preferable. But the battle against unnaturalness is by no means won.

In the swamp country of southern New Guinea, on one of the big and relatively unknown islands of the

Solomons group in the Pacific, and in one section of the Central African plateau, I have encountered and pictured tribesmen who were utterly unaware of what on earth I was up to.

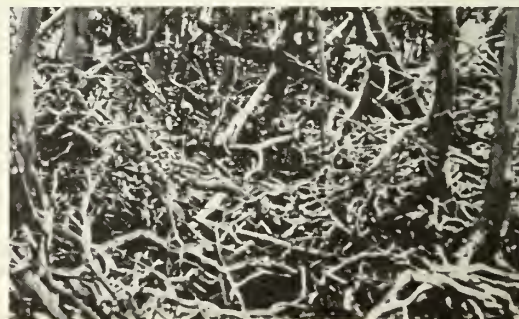
But after all, I myself was there. The small, one-eyed object I was forever twiddling with might be so meaningless to them as to be uninteresting. But I wasn't.

A rather nastily-white biped who seemed to sweat out of all proportion to the clothes he was wearing had their undivided attention, whatever he was doing. So straightforward picture taking still recorded them in as stiff and unnatural attitudes as any yokel posing for a tintype. Because of the conviction that a conscious subject is no subject at all, I have therefore developed a few utterly simple and childish tricks for picture getting. Even in my most expansive moments, I can hardly call them a technique. But they work anywhere.

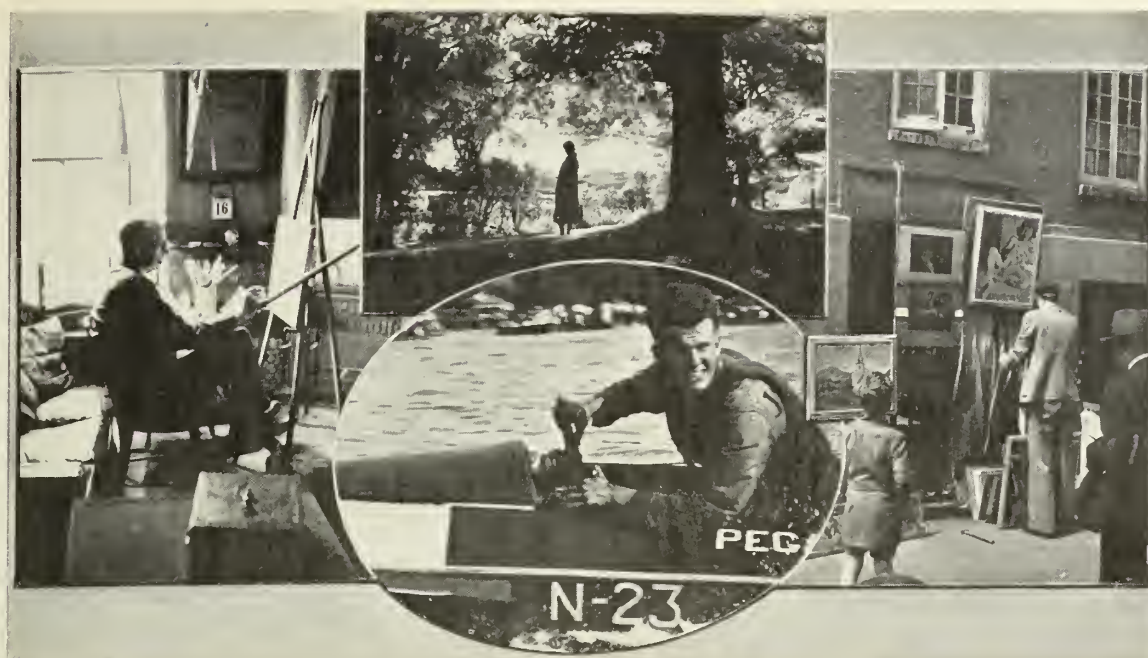
The first and probably the best method for getting natural pictures of primitives is of course, through the use of that most happy gadget, the right-angle view finder. And using it straightforwardly. Standing on my head and contorting to shoot under the armpit, both of which have been suggested as ways of getting surprise pictures, I have found, not oddly, is apt to attract a certain amazed and disconcerted attention on the part of the victims. But employed simply, few of any nationality, including most civilized individuals, have I found who have sense enough to realize that few pictures are taken through parts of the camera other than the obvious and shiny lens.

An equally sound means of achieving naturalness, when the right-angle jigger may seem impracticable, is through a judicious use of boredom. Frequently I have approached, say a group of Africans engaged in house-building. Being as interested as I was in them and being, besides, naturally hospitable, they have stopped everything on my approach. When I produced the Leica and aimed it at them, they became even less interested in house building. But after I had stood there with blank and beaming face and levelled camera for three minutes, they became restless. And after five minutes, they reached the conclusion I was half-witted and returned to what they were doing—so fed up with watching me by that time that I could go on and take fifty pictures of their activities without causing them to raise their eyes . . . Sometime, of course, a knife may be justifiably flung for *that cause*, too!

With the lined-up, straight-armed posing type of native the only thing I know of is to go ahead and take the







Right—An example of "Feature News." An artist prepares his display for an Open Air Art Exhibit, Greenwich Village, New York City. Leicaphoto by Karl A. Barleben, Jr. Left—Unprepared indoor pictures are part of the game. "The Artist," made with the aid of daylight coming through the windows only. A speed lens and fast film are necessary for this type of work. Leicaphoto by Karl A. Barleben, Jr. Upper Center—Pictorialism has its place in press photography. (Dupont Infra-D film, no filter, 1/20 second exposure at f:2.5.) Leicaphoto by Serge L. Krolle. Lower Center—Action pictures are always welcomed by the press. Here is a rare close-up of a speedboat in action during a race. Leicaphoto by G. Van W. Stivers.

first unwanted picture—then, with that done, when they think that all is over, go ahead and take the shots you originally wanted.

Still another way to fiddle interestedly with the camera—look at it from all angles, dust its lens, hold it up, put it down, take the picture by way of sandwich, and then go on with apparently concentrated and private effort to get some mysterious something right.

All these methods work far better than plain, blundering straightforward picture-taking. But when it's come to flashlights, one is apt to be completely stumped. If there is a way of exploding magnesium in primitive darkness, indoors or out, without anyone's noticing it, I confess I'm unaware of it. But sometimes the process is amusing.

In the great marshlands of New Guinea, the centers of native life are giant thatched long houses, some of them more than two hundred yards long and a hundred feet tall—with no aperture except one front door. Obviously, they are as dark as night inside whatever the conditions of light outside. But the long houses are where they collect and exhibit the skulls of the neighbors they have eaten; in them are kept their unique and gorgeous thirty-foot dancing masks, the carved shields and all the color of their lives. So pictures one must take.

Deceit being out of the question, I would endeavor to explain, in the variety of languages, none of them very well understood, that for my own peculiar reasons I was going to make a sudden light—but that it would all be over in a minute and (unless, of course, the dry roof thatch should catch fire!) there would be no harm done. This would be gone over several times until all seemed clear. Then a few scared blacks wearing nosebones and a shell would be draped where I wanted them—and I would let 'er go.

Results sometimes were quite wonderful. On one occasion I was under the interested observation of more than a hundred close-packed villagers. Behind them, the only egress was one small door about four feet high and two feet wide. But that did not deter them! When the flash went off, the whole hundred got out in nothing flat—as one, headlong, stricken man—leaving the doorway surprisingly enlarged! All, that is, except my un-

fortunate subjects—who for a good three minutes stood perfectly motionless, poor chaps, frozen with terror and convinced for the moment, of course, that they had been struck blind.

But that was the first time. When all had recovered and there proved to have been no actual casualties, the word went on ahead of us across the swamps and the Pouf! and the bright light thereafter, were in great demand.

It can be done—and it's a peculiar special kind of photographic fun doing it—and recording the far off peoples as they really are.

Often, many months later, I have tried, as a return courtesy, to send some of the results to the originals. I must have annoyed the post office amazingly. Rarely have I been able to learn whether my friends got their first letter of all times . . . The envelopes look so overcrowded:

Ngoya,  
Sultan of Tinguere,  
Cinconscription of N'guandere,  
French Cameroons,  
West Africa.

is, for example, a correct address and Ngoya not only photographs well, but he is an admirable man.

But I'm afraid he never got it. They haven't thought of R.F.D out there.

Equipment, naturally, is of great importance. Traveling in primitive parts of the world is necessarily such an awkward business that portability, when it can be achieved, is a virtue of amazing lustre. For this reason, and many others, I have after years of struggling, at last come to the conclusion that the LEICA—the camera, its adjuncts and its admirably easy developing system—is the ideal explorer's outfit. On a long expedition, the difference between the carrying of the LEICA and the load of supplies necessary for the reflex camera which I used for a long time, works out at over sixty pounds net weight—one and a half less head-load and less attendant troubles all along the line.

It is well, too, to have a camera which is physically inconspicuous. An object which can be ducked in and out of pockets—almost palmed—attracts less curiosity, seems less formidable, actually less dangerous. So the results that one can get with it tend to be more natural.



The new 50 calibre aircraft machine gun.

# A Cruise With the Black Fleet

## Newsreel Man John Herrmann Returns from the Antarctic Only to Be Summoned to the War Games.

Our brother, John J. Herrmann, one of the heroes of the last Byrd Antarctic Expedition, had no more than set foot in Hollywood on his return than he was ordered to mobilize himself and get ready to sail to Alaska and shoot the big war games.

The order came from Paramount Newsreel and on April 29th, Mr. Herrmann boarded the U.S.S. Minneapolis, newest of the 10,000 ton class Treaty Cruisers armed with three turrets of three 8-inch anti-aircraft guns; two catapults; four Voight Corsair Scout planes, Captain Gordon Haines, the highest speed of this war dog being 35 knots per hour.

The Minneapolis sailed from Long Beach, with the fleet, to Port Townsend to re-fuel and then sailed direct to Unalaska and Dutch Harbor.

After six weeks of the war games in the Alaskan waters the Minneapolis, with Herrmann aboard, set sail for Pearl Harbor, Hawaii, to a Midway Island, not touching at Midway but steering in sight of it.

The shooting had been good in the Alaskan waters and all the newsreel men who accompanied the fleet had been able to fill their magazines with good pictures. The other sharp shooters with the fleet besides Herrmann, chief cinematographer were Roy Cluver, of Hearst Metro-tone, on the Saratoga; Seebach and MacGrath, of Fox Movietone on the Utah; and Tommy Burns of the Associated Press, with Herrmann. These men were all with the Black Fleet and battle conditions prevailed everywhere

aboard the ships, but in spite of the strict rules the pictures secured were unusually good. The cameramen pooled all their negative.

Mr. Herrmann broke a world record on the trip. He traveled from 78:30 degrees south, in the Antarctic, to Unalaska, 54 north in three months' time. Mr. Herrmann is particularly proud of this record as it probably will not be excelled or equaled for many years.

Into Honolulu, May 25, for a week and then on to the California-Pacific Exposition at San Diego, on June 10th, where Mr. Herrmann left his captain's berth on the Minneapolis to take up his service on land for Paramount Newsreel.

At Hollywood he met his charming wife again and off they went to Galveston, Texas, for their first vacation in several years. They are both from Galveston and their trip to that seaport was getting back home, indeed.

On the Black Fleet in the picturesque Alaskan waters, the temperature being 36 degrees above, all the other cameramen were cold except Brother Herrmann who, after two years in Antarctica, regarded 36 degrees above as real picnic weather.

Our front cover still for this issue and the other interesting shots accompanying this brief yarn were snapped by Mr. Herrmann, and, by the way our front cover for May, showing Mr. Herrmann in his polar furs is the work of Will J. Walling, stillman for Paramount.



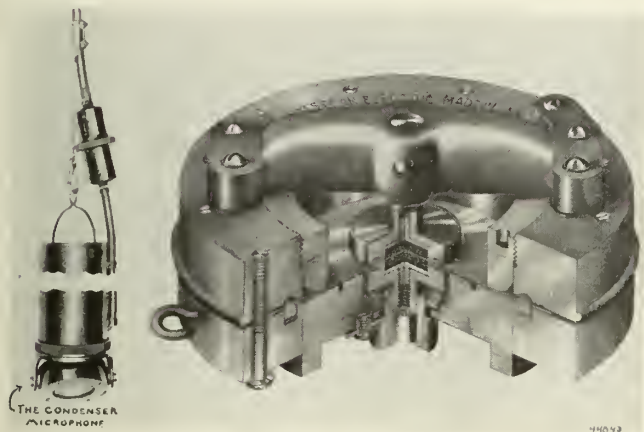
Left—Fueling a destroyer at sea, from U. S. Ship Minneapolis. Center—John Herrmann and camera on Main Street in Unalaska. Right—Voight cruiser on catapult on U.S.S. Minneapolis, the latest of the 10,000 ton cruisers.

The Motion Picture Relief Fund of Hollywood is one of the bright spots of America since the hard times came. The cameramen of the Motion Picture Industry gladly testify to this. God bless the M. P. R. F.



# Motion Picture Sound Recording

By  
**CHARLES  
FELSTEAD**  
Associate  
Editor



A condenser microphone. Courtesy Bell Telephone Laboratories.—  
Cross section double button carbon microphone.

## Chapter XX

By CHARLES FELSTEAD, Associate Editor

**I**N the preceding chapters of this series on microphones, the mechanical construction and the theory of operation of single-button and double-button carbon transmitters were discussed in detail. The high-quality, stretched-diaphragm condenser transmitter and its amplifier were also introduced into the discussion and described briefly. The types of housing used for the condenser microphone and something of the principle on which it operates were considered. The discourse on the condenser microphone was more or less general, however, and brought the discussion up to the point from which it is continued in this article.

### Construction of the Condenser Transmitter

The name, *condenser microphone*, is the general term, and refers to the combination of *condenser transmitter*, or *CT*, and *condenser transmitter amplifier*, or *CTA*. The condenser transmitter is the sound pick-up device; and it

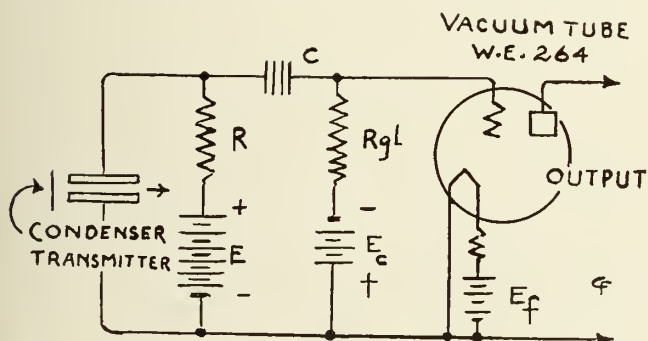


FIG. 1—Schematic diagram of a condenser-transmitter and the grid-circuit of the first C T amplifier tube.

is connected directly to its associated amplifier by a shielded cable that is usually quite short.

This condenser transmitter is built like a small metal drum; and in size it is about three inches in diameter and one inch thick. On the front surface of the drum, there is fastened a heavy brass-wire screen to protect the

fragile metal diaphragm, which is set back about a quarter inch from the screen. The other face of the drum carries a ring of insulating material and the two terminals of the transmitter.

The external appearance of the condenser transmitter will be evident from the accompanying photograph.

The exposed face of the diaphragm is approximately  $1\frac{3}{4}$  inches in diameter. This diaphragm is 0.0011 inch in thickness and is made from sheet aluminum alloy. It is held in a frame somewhat like an embroidery hoop, with gaskets of soft metal between the diaphragm and the threaded rings that hold it to prevent the diaphragm being damaged by the rings. The tension on the diaphragm is increased by turning the stretching ring in much the same manner that embroidery cloth is pulled tight by means of embroidery hoops. The tautness of the diaphragm is slowly increased by tightening the stretching ring until the natural period of vibration of the diaphragm is raised to 9700 cycles per second, which is greater than the highest frequency recorded by any recording system other than those of high fidelity.

The original *Wente* condenser transmitter, was developed in 1917, employed a thin steel diaphragm two mils thick and about two inches in diameter. Because of the stiffness of the air film and the stretching of the diaphragm, the resonant frequency of that transmitter was approximately 8000 cycles per second.

### The Back Plate

Directly back of the diaphragm, and so out of sight, is a heavy metal back plate that is clamped, like the diaphragm, at its periphery. The diaphragm and the back plate are insulated from each other, and in the present type of transmitter are spaced exactly 0.001 inch, or one mil, apart by means of a duralumin spacing ring.

The surface of this metal back plate, known also as the damping plate, is accurately machined to be perfectly plane on the side that faces the diaphragm; and then grooves, or channels, which cross each other at right angles, are cut in that plane surface. These grooves are for the purpose of broadening the resonance peak of the diaphragm. Where the channels intersect, holes are drilled through the back plate to permit passage of the gas with which the transmitter is filled. To decrease resonant effects still further, these holes are tapered at the front of the damping plate.

The stiffness of the air film is increased by the grooves in the back plate, thus producing damping through air friction and so improving the low-frequency response of the transmitter. The grooves also tend to prevent stand-

(Turn to Page 28)

CINEX TESTING MACHINES

CINEX POLISHING MACHINES

**BARSAM-TOLLAR MECHANICAL WKS.**

7239 Santa Monica Blvd.

Phone GRanite 9707

Hollywood, California

# Our Kindergarten Movie

By MARIE HOYE THORNQUIST

*Principal, Clifford St. School, Los Angeles*



HE kindergarten movie entitled, "Dramatic Play in the Kindergarten" which was taken at Ivanhoe School last year, has aroused much interest wherever it has been shown and questions have been asked as to its origin and the means by which it was accomplished.

The kindergarten children who are the characters in this movie, decided to build a Colonial house and furnish it, after searching for pictures in such magazines as "Home and Garden," provided by the teacher, Mrs. Porter. They were shown a still-film roll showing different kinds of homes. They went for a walk in order to discover Spanish, English, bungalows and two-story houses in the neighborhood. They found out that some were Spanish because they had tile roofs and they were made of stucco, while they knew some were English because they had painted roofs, dormer windows and showed half-timber work. The prettiest house was a big white Colonial house whose four pillars and two smaller pillars with a cupola near the door appealed particularly to the children.

The children soon began the building of the home for their baby doll and the construction of the furniture. Shutters were made of corrugated paper, painted green. Large white pillars made of rolls of cardboard, made the house look truly Colonial. And what an array of furniture!—a refrigerator with real coils consisting of wooden beads; cigar boxes used for ice cubes; a sink with "honest-to-goodness" silver-coated faucets; crib for the baby; high chair, stove with real oven and four burners; a fireplace with an opening for smoke to escape; a radio, bookcase, a baby grand piano. New words were added to their list,—shutters, blinds, pillars, half-timber work, barred windows, etc.

As the furniture for the house was being made, all the cut-out pictures from magazines of furnished living rooms, bathrooms, bedrooms, and kitchens were kept in separate envelopes. In this way the children had access to them to study the different types of furniture and the kind appropriate for each room. Cut-out pictures of Colonial, Spanish, and English houses were kept in separate envelopes and houses such as apartments, hotels, bungalow and cottages were kept in still another group.

Again children were shown the same still-film of houses for the benefit of a number of invited guests from the first grade. Janet was chosen manager; Peter, usher. Chairs were arranged with an aisle in the middle and one on each side, of chairs as in a real movie house. Mrs. Porter was the cameraman. Mrs. Thornquist and the children were the audience. Elaine and Lawrence were elected to tell about the pictures when shown. This proved to be a splendid review for the children with a real purpose to share their joy and information with others besides providing a real situation for oral expression for those who told about the film. This show was a real life experience. Children invited their guests, received them, saw to it that they were seated comfortably, explained the picture to them, then bade them good-bye.

While the building of the home was in process and

after it was completed, Mrs. Porter chose different children daily who wanted to be father, mother, brother and sister and play in the home. The house was dusted from top to bottom daily; groceries ordered over the telephone; baby (the doll) bathed, fed and put to bed according to schedule for this was a modern family; clothes washed and ironed; luncheon prepared for father; (not so modern); milk was delivered and placed on the doorstep, the mail man delivered the letters; father was seen spending his time reading the paper or eating or watering the flowers; the maid washed and hung out the clothes. The whole family got together only at meal time (strictly modern).

This pure, spontaneous play went on from day to day. The children's play was so natural and spontaneous that Mrs. Porter and I decided to try our hand at directing a movie of the children. Parts were chosen by the children and try-outs were held, while the children selected the characters. When the cost of the movie became a stumbling block, one of the school's good patrons came to the rescue. Mrs. Nagamori said she could ask a Japanese expert cameraman to take the movie while the cost would be only for materials.

The motion picture as finally produced proved to be a small classic. The fathers and mothers of the young actors and actresses were invited to the Preview. Although it was held at an un-heard-of hour, ten o'clock in the morning, we had a full house of fathers as well as mothers, and appreciation was expressed on all sides.

If you see the motion picture described above, you will also see the results of a short study of the seashore, as summer was near and children were experiencing trips to the beach. A boat,—a yacht, was built. You will see it near the pier, in the movie, with children getting into it, and other children on the pier waving good-bye to them. Live stock was no less an entrancing addition to the action. Two ducks, "Quack and Wack" which were reared from babyhood, are playing along the shore.

The reason that to us this movie is "precious" almost "sacred" is that it shows little children at their play, living in a spontaneous, natural, happy manner. It is a film record of an entire unit which developed as it should. Children leading, teacher guiding; children extremely interested. As the needs arose, plans were made, evaluated and carried out to the satisfaction of the children. Trips and visual aids were used to clarify ideas; frequent purposeful reviews were given when needed. Rehearsals were not used. No two performances were ever the same. The performance was truly spontaneous play; so that the cameraman was not obliged to take the picture over again, as far as the children's acting was concerned.

Phone CLadstone 4151

## HOLLYWOOD STATE BANK

The only Bank in the Industrial District of Hollywood  
under State Supervision

Santa Monica Boulevard at Highland Avenue



## FIFTH ANNUAL SALON

The Fifth Annual Salon of Photography, sponsored by the Camera enthusiasts of San Diego and hung in the Palace of Photography at the California Pacific International Exposition, has been judged and was ready for the opening, May 29.

Two members of Local 659, I.A.T.S.E., are represented among the receivers of awards. Irving Lippman received the silver medal in the professional portrait class with "John Barrymore." The bronze medal went to William Fraker for "Negro."

The gold medal went to Edmund Drummond Young, Edinburg, Scotland, for "Miss Jessie Brown."

In the pictorial class, where judging was most difficult, on account of the high standard of material, the awards were:

Gold medal—Erno Vadas, Budapest, Hungary, for "Ganse."

Silver medal—Jose Ortiz Echague, Madrid, Spain, for "Mujer Mallorquina."

Bronze medal—Dr. Harry Wright, Philadelphia, Penn., for "A Life Saved."

Awards in the commercial class were:

Gold medal—Valentino Sarra, Chicago.

Silver medal—Charles Kerlee, Los Angeles.

Bronze medal—Harold Halliday Costain, Scardale, New York.

A hurried glance over the accepted prints in the pictorial section reveals the names of:

Karl Struss—2 prints.

Kenneth Alexander—2 prints.

Ganahl Carson—2 prints.

Merritt Gerstead—1 print.

Fred Archer—4 prints.

This is a very good record considering that out of some 3500 prints about 360 were accepted to hang (about 1 out of 10).

## LEICA DATA BOOK

The Leica Data Book, by Karl A. Barleben, Jr., F.R.P.S., in its fourth edition and fabricated by the Fomo Publishing Company, Canton, Ohio, is in the hands of the Leica fans and Mr. Barleben has scored another bull's eye.

The little book is a delectable conception both in appearance and in contents, and as a help to the Leica owner, its value cannot be exaggerated.

Its 84 pages are full of the meat that the Leica operators feed upon and it is in every way as excellent as the first three editions.

The possession of these Leica Data books by the owner of a Leica camera greatly increases the value of the camera to the owner, and *The International Photographer* cannot too earnestly recommend these books to the Leica fan.

Cameramen will never fail to sing the praises of the Motion Picture Relief Fund and the noble women and men who have administered it, the best job of the kind in California.

## EDITORIAL STAFF INCREASED

E. Leitz, Inc., 60 East 10th Street, New York City, announces that Augustus Wolfman has been added to the editorial staff of their monthly publication, LEICA PHOTOGRAPHY. Mr. Wolfman is well known as the author of the book, "The Miniature Negative—Its Development and Care," former technical editor of PERSONAL MOVIES (which was discontinued in December, 1934), and present editor of the miniature camera department of *The International Photographer*.

LEICA PHOTOGRAPHY is now in its third year, and brings to all registered Leica owners in the United States the latest news, formulas, hints and suggestions in the miniature camera field. The popularity of this magazine, the only one of its kind published in America, incidentally, may be gauged by the fact that many paid subscriptions come in from all parts of the world. In America it may be obtained at most photographic stores at ten cents a copy. Leica owners receive it free of charge.

The addition of Mr. Wolfman to the editorial staff indicates that the future will see LEICA PHOTOGRAPHY a bigger and better magazine. The present staff now consists of Willard D. Morgan, Karl A. Barleben, Jr., and Augustus Wolfman, each an authority of miniature camera photography, hence the readers of LEICA PHOTOGRAPHY are assured of complete and authoritative information at all times.

Mr. Wolfman will remain a regular contributor to *The International Photographer*.

## HOW MUCH DOES CHARLIE CHAPLIN OWE THE WORLD

According to cinema statistics Charlie Chaplin owes me \$117.00 for leaving me 234 weeks without Chaplinesque entertainment—that's at the rate of 50c per week. And if every Chaplin fan feels like I do about it, Charlie is in debt to the world about \$117,000,000 worth. No kidding, Charlie; you just naturally ain't treatin' yer friends right.

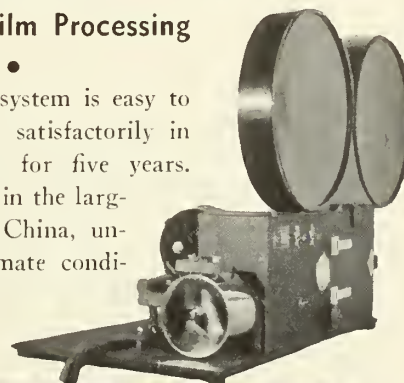
## WHICH END IS THE BIGGEST?

The Additive and Subtractive protagonists and antagonists in the big motion picture color battle remind one of the Big Endian exiles in Gulliver's Travels. They were the people who preferred to crack their eggs on the big ends, hence were banished.

## VARIABLE AREA

## Simplifies Film Processing

Our patented system is easy to operate. Used satisfactorily in San Francisco for five years. Now installed in the largest studios in China, under severe climate conditions.



## VARIABLE AREA RECORDERS

PATENT NO. 1985584, OTHERS PENDING

ALSO

35 mm to 16 mm

REDUCTION SOUND PRINTER

AND  
SOUND EQUIPMENT

Cable address CRSCO

C. R. SKINNER MFG. Co.

125 HYDE STREET PHONE OROWAY 6909

San Francisco, California U. S. A.



The '35 Columbia Engineer Composite by M. A. Shiro and S. Rosen from 12 negatives. Leica Camera, Hektor f:1.9 lens. DuPont Superior film.

## New Prepared Developer

# Miniature Camera Photography

## A Booklet On Dufaycolor

**SHOOTING SCENES:** The photographer who is to spend his vacation in the country usually visualizes the outstanding prints he will obtain by photographing many of the beautiful scenes that abound in nature, but in many cases his subsequent prints are merely record scenes of the area photographed.

The main fault is the usual attempt to include too much in the photograph. To the eye a great lake, or a vast stretch of land viewed from a hill or mountain-top is a subject of outstanding beauty. On a photograph the same scene may appear quite mediocre. We must bear in mind that a photograph, like a painting is confined to a definite space, and as the artist who makes a painting, the photographer should also bear in mind that the rules of good composition are to be followed if good results are to be obtained.

This is not intended to be a treatise on good composition, but we wish to stress the point that simplicity is one step to successful results. A "shot" of an entire lake and the country bordering it may produce a good record photo of that lake. However, a photograph of one or two boats tied to one of the many docks on that lake, taken from an unusual angle, or a "shot" of some boulders lying at its shore and casting interesting reflections in the water, may produce a beautiful print. Record photos serve their purpose but if prints that smack of artistry are desired, simplicity in subject matter should be borne in mind.

One of the best methods of obtaining an education in good composition is to study the prints exhibited at salons, and which are continually reproduced in contemporary photographic journals.

**New Prepared Developer:** A new prepared fine-grain developer is being offered to the miniature camera photographer by McKnight & Champlin of Los Angeles. From the description given by its makers this developer seems to have interesting possibilities. We quote McKnight & Champlin as follows:

"Di-Atomic '320' is a new type of physical developer which removes silver from the gelatine, re-deposits it upon the latent image, and then dyes the re-deposited image a reddish brown. The image has a remarkable printing value, due of course, to the color of the dye.

"Negatives of any density can be obtained from normal exposures by controlling two factors—temperature and agitation.

"An increase in temperature permits the solution to penetrate deeper into the gelatine and remove more silver.

"Silver is re-deposited in proportion to the amount of agitation the solution receives.

"The temperature may be raised to as high as 80° F. for special effects. The best temperature is 70° while negatives developed at 65° will be very soft with full shadow detail. Agitation should be nearly continuous.

"After one-third of the time required for full development is completed, the image will appear with all shadow detail; it slowly builds up until a perfect separation of tones is reached. It is therefore possible to make a negative which is exactly suited to the size of enlargement to 5 x 7 or a thin one for enlargement to 16 x 20. The thin ones will also make good 5 x 7 enlargements by using a slightly contrasty paper."

A special fixing bath is required for negatives developed in Di-Atomic "320," the formula for which is as follows:

Water	- - - - -	32 ounces
Sodium Hyposulphite	- - - - -	16 ounces
Dissolve completely, then add:		
Sodium Bisulphite	- - - - -	¾ ounce
Chrome Alum	- - - - -	164 grains
Ammonium Chloride	- - - - -	¼ ounce

Di-Atomic "320" is a new addition to the many reliable fine-grain developers on the market. Although they have been listed in this department on former occasions we will again mention the different prepared fine-grain developers available to the miniature camera photographer. These developers are either ready for use, or merely require dilution or solution in water, thereby simplifying matters for the worker who has limited time or space.

Besides Di-Atomic "320" the miniature camera enthusiast can avail himself of, Agfa Fine-Grain Developer, Edwal D-G, Perutz Fine-Grain Developer, Hauff's Glycin Tubes, Rytol, Tabloid Fine-Grain Developer, Nografin, Eastman D-76, Boratol, Verebest Fine-Grain Developer, Glycinol, Micrograin "85," Perim, M. P. G., Supersoup, and P. D. H. Super Fine-Grain Developer. It is obvious that the worker has quite a choice, and it is probable that in the future more prepared fine-grain developers will appear on the market. Some workers may be tempted to try many of these developers. This may be a good practice as far as experimentation is concerned, but the photographer should finally choose one developer which seems best fitted to his needs. Through continued use he will become acquainted with all its possibilities, thereby obtaining optimum results with it.

**Super X Film:** Those photographers who have been

### 35mm. Eastman or Dupont

Fresh Gray Backed Negative

Price 2½c per Foot

for

AMATEURS or PROFESSIONALS

KINEMA KRAFTS COMPANY

6510 Selma Ave. Hollywood, Calif. GLadstone 0276



wishing for more speed now have the Eastman Super X Film at their disposal which is 50% faster than the regular Supersensitive Panchromatic Film, thereby opening up new avenues in candid and night photography. Generally the faster the film the more development time it requires, and this holds true with Super X Film. It is necessary to give it  $1\frac{1}{2}$  to 3 minutes longer developing than the regular Supersensitive Panchromatic Film, to obtain the same gamma. Another fact about this film is that despite its speed its grain is not coarser than that of the Supersensitive Panchromatic Film. In fact many observers have picked it as showing a slightly finer grain.

At present this emulsion is offered only in the 35 mm. motion picture size, and is obtainable either in bulk or in daylight loading spools.

**New Accessories:** E. H. Peterson of Chicago manufactures a few gadgets which are of interest to the miniature camera photographer. One of these is a cup-like device which screws on the shutter release button of the Leica camera and is known as the "Leica Shutter Release Guard." As its name implies it prevents the accidental release of the shutter once the latter has been wound, and the camera either slipped in a pocket or placed in a case. It also helps to produce better pictures because the finger rests partially on its rim, thereby maintaining a steadier shutter action.

Mr. Peterson also manufactures a sturdy tripod head which differs from other types in that the screw turns into the camera instead of turning the camera onto the screw. A "Convertible Table Tripod" is also offered by Mr. Peterson for which legs of various lengths are supplied. When the legs are removed the head may be used on any ordinary tripod. It would be well for the photographer to see these new gadgets at his dealer.

**The Rolleiflex Salon:** The Rolleiflex salon has recently ended and the prize winners selected by the one-man jury, Colonel Edward Steichen. The first prize was awarded to Alajos Schuszler of Brooklyn, N. Y., for his picture entitled, "A Rare Sight in New York," which depicted a scene rarely witnessed in the large city.

The second prize was won by Alex J. Krupy of Chicago, for his photograph "Force," while another resident of that city, Fred Chadde, took the third prize with his picture entitled, "Girl with Goat." Numerous participants were recipients of a number of smaller prizes. Needless to say there were quite a few outstanding prints exhibited which provided a treat for those who visited the salon.

**Spots on Prints:** Some workers who use two pieces of optically-flat glass to sandwich the small negatives

## BY AUGUSTUS WOLFMAN

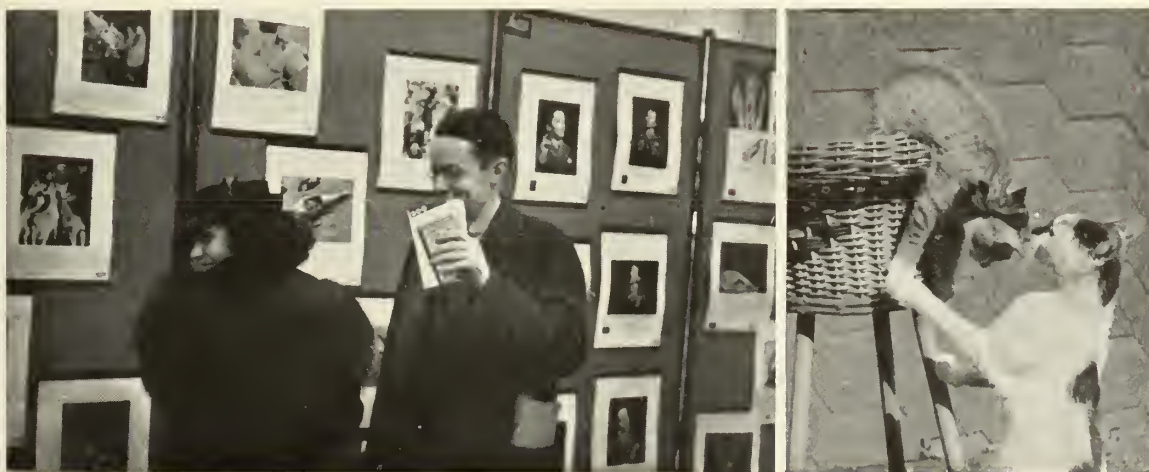


to place them into the enlarger have noticed that white spots, due to dust specks on the glass negative carrier, appear on the print when the lens is stopped down. This is due to the depth of the focus of the lens when it is stopped down so that the upper and under sides of the glass plates besides the negative image are focused thereby producing images of the small specks of dust adhering to the glass plates.

If the lens is left wide open the depth becomes so shallow as to throw the glass plate surfaces sufficiently out of focus to eliminate the image of the specks. However, if this trouble is encountered the correct remedy is not to open the lens. The condition rather calls for a cleaning of the glass negative carrier. Before the photographer commences with printing a wise procedure to adopt is to clean all accessible glass parts that are employed and after a few prints have been made the glass negative carrier, etc., should again be wiped to remove any dust specks which have settled there. Although the subject of cleanliness has been harped upon time and again in this department the worker must remember that it is one of the main factors to success in miniature photography.

**Dufaycolor:** An interesting little booklet on this new process can be obtained by writing to Dufaycolor, Inc., 30 Rockefeller Plaza, New York City. This booklet lists all the processing formulas necessary for Dufaycolor as well as other salient facts. The booklet is free for the writing.

The GG-2 Jena Glass Filter supplied by Fish-Schurman Corp., of New York, American representatives for the Jena Glass Works, is recommended for daylight work with Dufaycolor Film. It is a "U. V." type filter, which absorbs an excess of blue light.



Right—Romeo and Juliet: Leicaphoto by Wm. Ulm. Exposure was made on Perutz Neo-Perseno Film. Left—Candid photo taken at Leica Exhibit by Karl A. Barleben, Jr.

Please mention The International Photographer when corresponding with advertisers.



By  
**EARL THEISEN**

## Hollywood at the San Diego Exposition

[Mr. Theisen, who was active as Executive Secretary of the Motion Picture Hall of Fame, recounts here some of his experiences in bringing together the exhibit. He wants to take this opportunity to thank Jack Daily, Coyd Crowder, Roy Burns, Harry Loud, Al Rackin, Johnny Johnson, Alf Reeves, Mark Larkin, Mrs. Lewis, Marge Decker and many others who gave so much of their time and through whose efforts the show has been made more complete. If, after visiting the Exposition, the reader desires to make any suggestions or has exhibits available to lend for display, arrangements may be made through Mr. Theisen or Mr. Ben Black, the latter being manager of the Hall of Fame at San Diego.—Editor's Note.]

It is always so. Back of the crowd, a little couple, married I suppose, about twenty-five or so, very scrawny and meager-looking, were trying so very, very hard to see through the crowd.

The throng was watching one of the first shows of the "actual making of movies" in the Motion Picture Hall of Fame at the California-Pacific International Exposition at San Diego.

Like excited children this couple was trying to peer through the crowd and see the movie stars. The woman, I know, was a fan in definite terms. When Richard Tucker, the master of ceremonies, introduced the various celebrities and film folk, this man and woman scampered about the outskirts of the mob in a plaintive frenzy trying to get just one glimpse.

The woman stood it just so long. Finally when Francis Lederer was introduced she had her husband lift her in his arms high enough to see. Everytime a star was presented up she went to remain as long as his thin arms could hold her weight. It bespoke their ardent fan-hood and how important the motion picture was in their lives.

Finally I went over and said: "Hello," and "did they think it was crowded?" and, "would they like to see the show?" They looked at me like a stranger trying to strike up an acquaintance; but they assured me they wanted to see.

Like a fairy god-mother, I said: "Follow me," and started through the crowd with a commanding "comin' through." I took the little couple through behind the ropes and seated them along side the director's chair. There they sat near Jean Hersholt, Anita Louise, Warren William, Thelma Todd, Ralph Morgan and Lee Tracy. The eyes of my couple were starry, and misty with pleasure. They were too happy to thank me.

That was just one of the highlights of the hectic opening day at the San Diego Exposition. Five weeks had been allotted in which to bring together the exhibits and set them up; so for each of the seven days of the five weeks previous to the opening, everyone connected with the Hall of Fame had had a hectic time.

A little more than a month before the opening date of the San Diego Exposition, Kenneth Thompson, Secretary of the Screen Guild, asked if I had brought together the collection of film relics at the Los Angeles Museum and would I come out to see him. After arriving at his office and discussing matters, we went to see Marco, of Fanchon and Marco. Before I knew it, I had contracted to set up an exhibit similar to the Los Angeles Museum Motion Picture Gallery. I did not realize what I had done until the next morning. What I had done for the museum in five years, I had promised to do for the San Diego Exposition in five weeks. That is Hollywood!

Starting next morning the telephone was kept busy. It was a common sight to see Kenneth Thompson or Bill Flannery and "Dick" Tucker, who were arranging for the sets for the demonstration of how pictures are made,

to rush to the phone and call the rest of us, announcing something that had been promised. We were like kids.

From sunrise until dark we scampered and telephoned and telephoned and scampered. Everyone who came near us was drafted into service. Besides exhibits, many thousands in number, there was the problem of getting show-cases, costume forms, wax figures, display devices, padlocks, drapes, labels, tacks, storerooms, etc., no end.

It was not simple to arrange for the exhibits. We could not just telephone to a producer or the publicity department and make our desires known. The picture makers were very, very busy with their own problems, and we, working for the San Diego Exposition, were just one of the many issues in their routine. Much of the material wanted for the Hall of Fame in the way of props or paraphernalia was from pictures which had not been released or were still before the cameras. In some instances, our trucks called at the studios five or six times to pick up promised exhibits only to find the previous day's shooting had fallen behind schedule and the exhibits were still needed.

Some material was even released from the studios and taken to San Diego only to find it was needed for additional "shots." Of course, the exhibits had to be returned, and then again sent to the Fair after the filming was finished.

In gathering and assembling the Hall of Fame, it was the policy to make a show that would represent the science of picture making in all the departments as well as portray some of the tradition and history of the motion picture industry.

A portion of the Motion Picture Hall of Fame is made to represent a sound stage. All of the details of this room were reproduced as correctly as it possible. Over the door on entering is the usual red light and signs warning against entering when the light is lit. On the inside of the sound stage are two sets, one from the Walter Wanger Production, "Shanghai," and a second from the Columbia picture, "Love Me Forever," starring Grace Moore. On the Columbia setting, which is a very beautiful and a characteristic movie set, the demonstration of how pictures are made is conducted.

"Jimmie" Palmer, widely known in the Hollywood studios, is the cameraman, Joe Walker, also well known as a studio electrician, handles the lights, while "Dick" Tucker and "Ken" Thompson are the Director and Master of Ceremonies. Both of these men through their years

(Turn to Page 22)

## We'll Pay Cash!

WE WANT IMMEDIATELY

Mitchell  
Akeley

Eyemo  
Bell & Howell

De Brie  
Contax

Leica, and Similar Used Cameras

— Also —

LENSES, MOTORS, PARTS, AND CAMERA  
ACCESSORIES

What Have You To Offer?

Write or Wire Today

MOTION PICTURE CAMERA SUPPLY, INC.

723 7th Avenue

New York City



# CHINA IS ON THE WAY

By C. R. SKINNER

**M**R. C. R. SKINNER, of San Francisco, member of 695 local sound union, has just returned from China, having spent several months there visiting all of the major studios, and installing his variable area recorders for some of the largest producers.

He is very optimistic regarding the outcome of pictures in China, in spite of the fact that the Chinese have the habit of getting organized about five o'clock in the afternoon and working until late hours of the morning in order to get their pictures when everyone is in the right mood. There is a certain patience and calmness that does not exist in the American studios, and is conducive to artistic results. The people are all of a very artistic nature, a fact which works both to their advantage and disadvantage in making pictures.

Their lack of experience in mechanical details has held them back, especially in sound. However, with an automatic volume control and variable area track, sound is causing them less trouble than ever before. They have acquired, through experience, camera technique to such an extent that some of their cameramen are proficient operators as well as artists and are able to produce results which are very beautiful.

Carpenters, laborers and artists to build sets are very plentiful throughout all of China; the cost of producing sets, therefore, is very low.

The time element is not noticed and for this reason they will be turning out beautiful pictures that only thoughtful study can produce.

The climatic conditions vary considerably from place to place, and there is a great lack of heating in cold weather in equipment rooms and studio buildings. It is necessary that sound equipment, amplifiers, and microphones be built with this fact in mind. Many shots are done outdoors and, in cloudy or rainy weather, are merely held up until the sun comes out, but as mentioned above, the time element is not important in China.

The lighting equipment is quite good, as it is nearly all Mazda equipment, either of American makes or copied from American makes. Dolly shots and follow focus shots are quite common, but dissolves and wipe-across, fade-ins



Glimpse of a Recording Room in China.

and fade-outs, are still usually made in the camera instead of in the laboratories.

Most of the camera equipment is usually Bell & Howell or Mitchell, but older DeBrie models are usually found in all of the studios, although they are not used to a great extent even on silent shots. DeBrie printers are also quite common in printing rooms, but the Bell & Howell continuous printers are nearly always in evidence wherever a considerable amount of printing is done. There is a printer made in China similar to a Bell & Howell, which is used by a few people. Inasmuch as there is no patent treaty between the United States and China, copies of many American products are seen throughout all of the studios.

Labor is very cheap over there, in comparison to the American scale, and everyone has many assistants, including the assistant cameraman. In fact there is always someone handy at any time to move your camera or any part of the equipment.

Actors are not paid quite as much as they are in this country, and work much harder for their money. As a consequence, their best pictures can be produced for about \$30,000.00 and the average length of each picture is about ten reels.

## ROY DAVIDGE FILM LABORATORIES

...

An Exclusive "Daily" Laboratory

...

Quality and Service

6701-6715 SANTA MONICA BOULEVARD  
GRanite 3108

# BEAMS FROM THE PROJECTOR

Arthur Marion is back from the high Sierras where he shot the stills for a couple of independent westerns.

Hollywood is slowly, but surely, developing into an industrial town—thus far most of the enterprises being those allied to the motion picture industry.

Paul Perry reports that his new color laboratory at Manila, P. I., has opened to excellent business and he and his major domo are all cheered up about it.

Keep cheered up—Charlie Chaplin is about to release a picture. It hasn't any title yet—only a number—but then Chaplin doesn't need any title to make 'em laugh.

That astounding book of Helena Petrovna Blavatsky, "The People of the Blue Mountains," would shake the world. Wonder if Hollywood producers have heard of it.

Ray Fernstrom, newsreel photographer who just recently returned from Europe, will speak on "Color Photography" before the Los Angeles Cinema Club, July 2, at 7:30 p. m.

A young Chinese business man says that China is laying the foundation for a great cinema awakening. China will build 30,000 motion picture theatres. Great news for our producers of raw film!

No sir, Bill Hart is not going to make another big Western picture. H. O. Stechan, author of "The Great Apostle" had the sad news directly from our beloved Bill Hart himself. Sorry Bill. Dog-gone it.

Can you name the fifty most beautiful Hollywood stars of all time? The women of times gone were easily as lovely as those of the present and without benefit of beauty parlors and modern raiment, too.

A writer on pulchritude is worried because the feet of the present day Hollywood beauty are growing larger. Let him be consoled. If the fair ones can continue to qualify as good wives and mothers they need not worry about their charms below the ankle.

India, up and coming about everything appertaining to the cinema, was the first foreign country to order copies of "Script to Screen," Lewis W. Physioc's new book on motion picture production. It won't be long now, according to our latest report from the author.

It is rumored that another Abraham Lincoln picture is on the way. George Billings who played the lead in the Rockett-Lincoln Film Corporation's production, is dead and there will never be another. And this suggests

that a great Robert E. Lee picture is in process of conference. Wonder where the producers expect to get a Lee.

## CALIFORNIA PACIFIC INTERNATIONAL EXPOSITION

The new buildings at the California Pacific International Exposition are a combination of the two oldest and most typically American schools of architecture, the ancient Mayan and Indian Pueblo. Little or no ornamentation is used on these buildings, the architects depending almost wholly upon native, living, blooming flowers and vines. These floral decorations are set in concealed planting boxes in the building parapets, and trail over the building sides in hanging garden effect.

With the aboreal and floral glory of the park generally, a breath-taking picture is presented to visitors at America's Exposition.

The Exposition section of the park is laid out in the form of the letter "S" extending from northeast to southwest. The Amusement Zone forms the top of the "S", the middle section being exhibit palaces, and the lower portion being devoted to additional exhibit palaces and individual industrial buildings.

Huge buses, 100 passenger capacity, are available for tours of the grounds.

### Historical San Diego

For natural beauty and colorful history no better spot could be found than San Diego.

Fra Junipero Serra, gray-robed Franciscan monk, who founded the chain of missions which extend, one day's journey apart, from San Diego in the South to Sonoma in the North, called it "the land of joyous aspect." It is truly that.

Juan Rodriguez Cabrillo, a Portuguese sailor in a Spanish uniform, discovered these shores in 1542. Here, under direction of Fra Serra and his brother monks, the Indians built the first irrigation ditch, the first impoundment dam, the first town, the first school and the first church ever erected on these shores.

Such illustrious names as Viscaino, Coronado and Portola are closely identified with San Diego's early history.

*In SAN FRANCISCO STOP at the*

## Hotel Mayfair

626 Polk St., near Civic Center

100 Rooms	100 Baths
Single \$1.50	Double \$2.00

*Special Rates for Permanent Guests*

*Operated by a Member of Local 659*

**DARK ROOM FACILITIES PROVIDED**





# THE S. M. P. E. SPRING CONVENTION

Hollywood, Calif., May 20-24, 1935 Hotel Roosevelt

The S. M. P. E. Convention of May 20-24, 1935, held at Hotel Roosevelt, Hollywood, was probably the most outstanding, both as regards presentations and attendance, that the Society has ever held.

The meeting opened Monday morning with the usual Society business and a recommendation to the effect that Mr. Thomas Armat, pioneer motion picture inventor now living in Washington, D. C., be admitted to Honorary Membership in the Society. The recommendation was approved unanimously.

Addresses of welcome were made by Mr. G. F. Rackett, on behalf of the Pacific Coast Section, and by Mr. E. Huse, Executive Vice-president of the Society, followed by a brief response by President Tasker. Short addresses followed, by Mr. Howard Green, writer, Paramount Productions, Inc.; Mr. Kenneth MacGowan, Associate Producer, RKO Radio Productions, Inc.; and Mr. George E. Browne, International President, I. A. T. S. E. (Due to illness, Mr. Browne was unable to attend; his address was read by Mr. Thad Barrows.)

On Monday evening, Mr. W. Garity, Production Supervisor of Walt Disney Studios, entertained approximately 150 of the members with a demonstration of some of the means employed for creating the incidental sounds for Mickey Mouse cartoons and the Silly Symphonies, followed by a formal paper on the subject of cartoon technic.

On Tuesday, at noon, the members were entertained by the Electrical Department of Warner Bros. First National at a luncheon in the studio restaurant, under the direction of Mr. Frank Murphy, Chief Studio Engineer.

Tuesday evening, the members of the S. M. P. E. were the guests of the Academy of Motion Picture Arts and Sciences at a meeting of the Technicians Branch, held at the Carthay Circle Theatre, in Hollywood. Papers were presented by J. A. Ball, Mrs. N. Kalmus

and R. Mamouliau, on the subject of color in motion pictures, followed by various examples of recent color motion pictures, including two reels of the currently released feature Becky Sharp.

On Wednesday afternoon the members were conducted on a tour through the beautiful Fox Hill Studios of the Fox Film Corp., under the direction of Mr. W. J. Quinlan, Chief Studio Engineer.

At the Semi-Annual Banquet and Dance, held in the New Supper Room of the Hotel Roosevelt on Wednesday evening, the members were addressed by Mr. Frank Lloyd, of Metro-Goldwyn-Mayer and President of the Academy of Motion Picture Arts & Sciences, after a brief introduction by President Tasker.

On Thursday afternoon a trip was arranged to the California Institute of Technology. A group of about fifty persons was conducted through the aeronautic and high-voltage laboratories under the direction of Dean F. W. Hinrichs, Jr.

## *The Apparatus Exhibit*

Although interest in the exhibits of motion picture equipment at conventions of the Society seemed to have lagged somewhat during the past several years, the exhibit at Hollywood seemed to indicate a revival not only of interest, but of increased activity in the development of new equipment by the industry. The following named firms exhibited their new equipment.

Ampro, Inc.; Ashcraft Mfg. Co.; Baldor Electric Co.; Cannon Electric Development Co.; Century Electric Co.; O. B. Depue; DeVry Sound System; Dictograph Products; Eastman Kodak Co.; Electrical Research Products, Inc.; Goldberg Bros.; Hollywood Camera Exchange; Mole-Richardson, Inc.; Moviola Company; National Carbon Co.; National Theatre Supply Co.; Newmann Process Projector; RCA Manufacturing Co.; SCK Corporation; Vitachrome, Inc.; Neumade Products Corp.

## Device For Saving Your Bacon

Where's the car!

There's always one aimed at the pedestrian with more or less intent to kill and it behooves the said pedestrian to be on the alert to avoid it.

Not that the chauffeur has any desire to run you down—oh, dear, no. But his foot might slip, or the steering gear might be on the jazz, or the emergency brake might not be working. You never can tell what's gonna be the matter with an automobile.

Of course there are many careless pedestrians and there are some boobos who almost dare the drivers to hit them, but there are not many of these, and sooner or later they get in a jam.

Speaking of safety first, a cameraman says:

"I drive a car, but I have never yet been caught in anything worse than a traffic jam. I ride much because I have long distances to go, but I love to walk, and I think I can approach this subject from the standpoint of the pedestrian as well as that of the car driver, and there isn't anything one-sided about it.

"Both the driver and the walker should be careful and patient. Both have rights that the other is morally bound to respect and tolerance is absolutely necessary. If you are driving, let your whole care be for the welfare of the walker. If you are walking, take no chances.

"When you start across the street, pause on the curb long enough to look four ways and then ask yourself: 'Where's the car?'

"It's coming. There's always one hearing down on you. Locate it. Gauge its distance. Be sure and then cross the street. Downtown I have had a few narrow escapes, but after I adopted my plan of asking myself: 'Where's the car?' I never have been in danger."

Try it. It works.

FRANK C. ZUCKER

J. BURGI CONTNER

## Motion Picture Camera Supply, Inc.

now has the Largest Stock of New and Used Modern Camera Equipment and Accessories of any Camera Supply House in the World!

### NEW MITCHELL SOUND CAMERA NOW ON DISPLAY

We sell Simplex Portable 35mm Sound Projectors, Moviolas—also new and used Mitchell, B. & H., Akeley, DeBrie Cameras and Equipment.

Regardless of your requirements, whether you want to buy or rent new or used equipment—call us for a quotation.

We only sell equipment that is thoroughly guaranteed.

Phone, write, wire or cable for quotations.

*Eastern Representatives*  
MITCHELL CAMERA CORPORATION  
HARRISON FILTERS  
FEARLESS PRODUCTS

## MOTION PICTURE CAMERA SUPPLY, Inc.

723 Seventh Avenue., New York City

Telephone BRyant 9-7755

Cable Address: Cinecamera

# PUTTING LIGHT WHERE

**M**OTION picture lighting units must put the light where the cameraman wants it. The distribution of light intensity within the beam must be specifically suited to the needs of photography. It must avoid "hot spots" and "dark spots"; above all, it must be completely controllable to meet the ever changing requirements of cinematographic lighting.

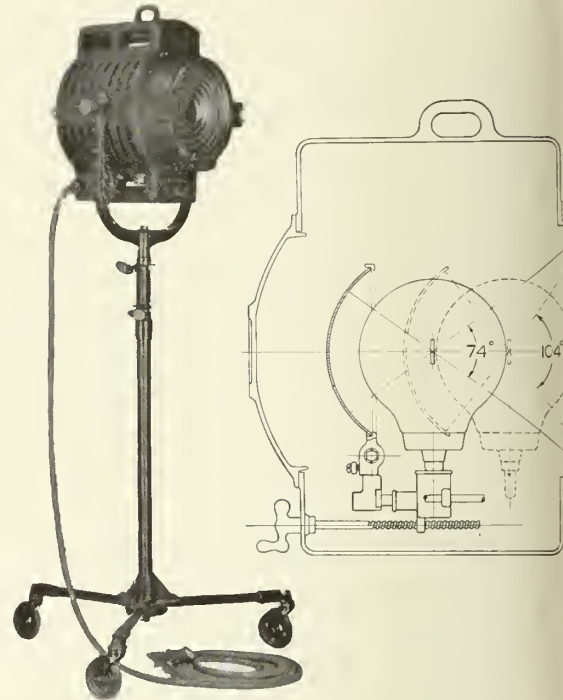
Studio lighting equipment can be divided into two basic classes: floodlighting units, such as "Rifles", "Broads", and the like, which are used for general lighting, spreading a moderately strong intensity over a wide area; and spotlighting units, such as the familiar 18" and 24" reflector-spots and the various condensing-lens spots, which project strong beams of variable divergences for back-lighting, set-modelling, and effect-lighting purposes.

Most modern floodlighting units are entirely satisfactory; but the same cannot be said for the spotlighting units. Therefore, after a careful study of the requirements of such lighting, and of the performance of existing types, an entirely new lamp has been developed, with the thought of combining, in so far as possible, the advantages of the best previous types, while eliminating their disadvantages.

From the standpoint of light distribution, the conventional condenser type of spotlight is excellent. It projects a very satisfactory, even beam at all divergences from 8° up to 45°; but it does not utilize the light emitted from its light-source with very great efficiency. The incandescent-filament globe, which is the most commonly used light-source today, radiates light in almost every direction, though of course the greatest radiations are directed forward and backward, at right angles to the plane of the filament. The condensing-lens normally collects only the rays from the front side of the filament: all the others are wasted. By fitting a small spherical mirror behind the globe, it is possible to reflect the rearward rays to form an image of the filament between the glowing coils, thereby greatly increasing the amount of light collected by the lens. If a short-focus condensing lens could be used, we would have an excellent lamp, for the condenser and mirror would be able to collect the radiations through a considerable angle of collection. Unfortunately however, the incandescent globe radiates a great deal of heat: and a plano-convex condensing-lens of a focal length sufficiently short to serve this purpose would be extremely thick, and would be subject to very high breakage hazards. The average condenser spotlight using a 2,000-watt globe has to have a lens of about 15" focus. Even with a proper mirror, such a lamp will collect only 32° combined reflected and direct light when the beam is "spotted" down to an 8° spread, and but 71° when the lamp is "flooded" to a 40° beam. At a distance of 25 feet, the intensity of the concentrated beam is 450 foot-candlepower, while if flooded out to 44°, the intensity drops to around 40 foot-candles.

The reflecting, or mirror-spot is vastly more efficiently in the intensity of light projected, but its distribution of the light is very poor. Since the introduction of Super Sensitive emulsions, the problem of "spilled light" has made it necessary to fit these units with spill rings, which cut off virtually all the light emitted from the front of the filament. The illum-

ination from the same 2,000-watt globe, used in such a lamp, with an 18" parabolic mirror of 7 $\frac{7}{8}$ " focus, is used much more completely than in a condenser lamp. Adjusted for a narrow beam of 8°, illumination of 121 degrees will be gathered from the globe, and the intensity at 25 feet is 2,800 foot-candles. When the beam is flooded out to a 20° spread, 116



degrees of illumination will still be collected; but the distribution becomes very uneven—exaggeratedly intense at the edges of the beam, but of actinically negligible intensity at the center. At this spread, the lamp may give an intensity of 415 foot-candles at the edges, falling off rapidly to a dark center of only 95 foot-candlepower. This is an inherent characteristic of the parabolic mirror; in practice, it can be offset somewhat by using diffusing screens and the like, but only at the expense of much loss of illumination.

## A MAN FOR

It was in the old days at Balboa Studios, Long Beach. I was a sort of father confessor to the boys and girls down there. One day our wardrobe lady phoned and told me to be on the lookout for Mary Jane Smith who was on the way over to get a load of my best advice.

"Be gentle with her," the wardrobe lady said, "for she is sore tried." Whatever that is.

Mary Jane arrived, accompanied by a large flagon of tears with which she liberally sprinkled me and my workshop.

Everything with Mary Jane was wrong. Her beloved husband, a skillful film editor, had been out of a job for a long time and the Smiths were starving. All utility bills were past due and so was the rent. What could the Smiths do about it?

With dulcet and reassuring speech I tried to soothe her shattered morale and failing in his, I began to prophesy.

"Look here, Mary Jane Smith, who are you to be cast down, when, this very night a man may be sailing from Yokohama, Japan, to San Pedro, whose actions will bring to you and your husband unbounded good fortune!"

"But I don't know any man in Yokohama and neither does Bill," she wept.

"Well, you have nothing on me," said I. "I don't know any man in Yokohama, myself, but if there isn't such a man in Yokohama there ought to be."

"Well, all right," sobbed Mary Jane Smith, I'll try, but how'll



# E CAMERAMAN WANTS IT

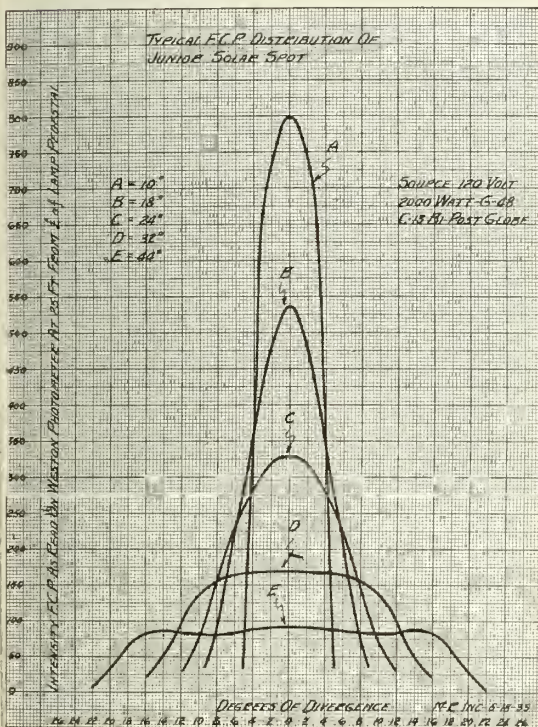
The use of faceted mirrors somewhat improves this distribution; but again at the cost of lessened overall intensity. In the European studios such mirrors are usually made of a mosaic of tiny glass segments; but in America, the amount of hand-work involved would make that type prohibitively expensive, so stamped metal reflectors, chromium plated,

The answer to the problem has been embodied in an entirely new lamp, the Junior Solarspot, officially known as the MR Type 210, which is shown in Figure 1. It is an extremely compact lens-spot-light, built around the 2,000-watt G48 C13 bi-post Mazda globe. The heart of the lamp is the lens, which was developed in conjunction with the firm which is making the great 200 inch eye for the new telescope under construction at California Institute of Technology for the Carnegie Institute's observatory. The lens used in the Junior Solarspot is of a type new to motion picture lighting, and termed the Fresnel type. Essentially, it acts like any conventional lens of the same aperture and focal length—but unnecessary thickness, which contributes to transmission losses and breakage hazard, has been eliminated. Figure 2, which shows a schematic view of the Junior Solarspot, illustrates the Fresnel lens in profile. As will be seen, while the lens itself is a single piece of heat-resisting glass, the image-forming curvature is segmented. Each segment is in effect a section of a conventional lens; but the sections have been rearranged in such a way as to give a strong, thin lens. The Fresnel lenses used in the Junior Solarspot are the result of months of experimental work carried on jointly by specialists in lamp design and lens making, and permit the production of a lamp which combines the efficiency of a reflector-spot with the ideal light distribution of a lens-spot.

The Junior Solarspot uses a Fresnel lens of extremely short focus, and this, in conjunction with a spherical mirror placed behind the globe, collects 74° of illumination when the beam is concentrated to an 8° spot, and 104° when flooded out to a 44° spread. Figure 3 shows the way the new lamp distributes the light at beam divergences of 10°, 18°, 24°, 32°, and 44°. This light-distribution adapts the lamp to an unusually wide range of photographic uses. For example, the Solarspot will completely cover a person at a distance of ten feet. Since it may be flooded to such an extent while still maintaining a usefully high intensity, the unit should be very useful for general lighting. Since the projected beam always has soft, diffused edges, the Junior Solarspot should be well adapted to back-lighting: areas of illumination from several lamps may be overlapped without producing rings or bands of light, while the wide range of intensity within the beam allows any degree of brilliance in back-lighting.

As a further means of controlling beam-intensity, the Junior Solarspot may be fitted with an iris diaphragm in front of the lens. By adjusting the iris and the flooding-control of the lamp together, a wide range of intensity may be had without disturbing either the size of the beam or the color of the light. The value of this for natural-color camerawork will immediately be evident; and it can be equally valuable in black-and-white as well, for it should eliminate the need for much of the present diffusion, as well as reducing the need for dimmers in producing special lighting-effects.

The presentation of this lamp to the camera profession is an answer to a definite demand from cinematographers for a tool which will not only prove more adaptable than existing equipment, but which will afford increased flexibility and greater scope in the Art of Lighting.



are employed. In either case, the reflecting power is much lower than that of the parabolic glass reflector, though the distribution within the beam is somewhat better.

Summing the matter up, it was found that the reflector type of lamp was highly efficient as long as the beam remained concentrated, but thereafter, the distribution became increasingly unsatisfactory; while the condenser type of lamp gave a beautifully even distribution throughout its range, but with relatively low intensity.

## YOKOHAMA

Bill and me get along for the three weeks it will take the Yokohama ship to get here?"

"You'll have to have faith, for one thing, and, in the meantime the studio will undoubtedly see you through"—and the studio did.

I didn't hear from M. J. S. for nearly three weeks and then one weary night there came a terrific ringing of my telephone and, after much invective against midnight phone ringers, I contrived to answer.

It was Mary Jane Smith. She barked at me like an excited prairie dog and all I could get out of her jargon was Yokohama—film—my husband—wonderful—miracle—etc. All of which was entirely unintelligible to my sleepy ears, but after ten minutes of soothing questioning I gathered from Mary Jane Smith that her husband had just received a long distance phone call from San Francisco. It was from his friend Wilbur Jones, a cameraman who had been in the Orient for many months shooting Chinese, Koreans, Japanese and Philippine stuff. The cameraman had just arrived at San Francisco three weeks out of Yokohama and he had 100,000 feet of film which he wanted Mary Jane Smith's husband to cut and edit for him—a \$150.00 a week job for many, many weeks, to the joy of both Mary Jane and her husband. And that was the end of hard times for them both, "till plumb yet," as my old friend Josh Burris would say.

You can't tell the Smith family that prophecy is dead or that prophets are false or that prophets no longer exist.

Maybe there's a man from Yokohama on his way to help you. Why not?



# MAKING THE MOST OF EXPOSURE

By HERBERT C. MCKAY

Reprinted from the American Annual of Photography, 1935, by special permission of American Photographic Publishing Co.

## PART 2

The photo-electric cell used in talking-pictures and similar work is a valve. That is, if a heavy current is *applied*, the portion which flows through the cell depends upon the amount of light falling upon the cell. A cell suitable for our purpose must *generate* its own current. Any instrument which requires a battery, or any external current, is not suitable for field use. Moreover, any instrument which uses any part which may deteriorate in time is unsuitable. The instrument must be capable of being sealed permanently in a protective case, and must be of such quality that it will continue to produce absolutely uniform results over a long period of time, even years. The cell should be of the type which converts light directly into electricity. The electrical meter should be designed for use with the cell and should have a scale calibrated in units of brightness. The meter should have practically an infinite life of usefulness. With such an instrument, and in no other way, scientifically accurate measurements of brightness can be made.

Such instruments have been used for some time in laboratory work, but only comparatively recently has such an instrument been available in a form designed expressly for the determination of photographic exposure. In this meter, the photo-electric unit is combined with a simple dial arrangement for adjusting the meter readings to the factors of lens aperture, shutter speed, and emulsion sensitivity.

This exposure meter, designed and built by precision instrument makers, has had its utility proven repeatedly by placing it in the hands of individuals with no photographic knowledge, who, by following the meter implicitly, produced roll after roll of negatives of such uniformity that they could be printed on one grade of paper with one printing time! The test rolls included a wide variety of subject matter. Such a test presents conclusive evidence to the photographer who understands the fundamental principles of his vocation.

This is not intended as a paean of praise for the product of any particular manufacturer. It is only a recognition of the value of the first really scientific method of exposure measurement to be offered to the photographer. We shall welcome similar instruments from other manufacturers when and if they offer meters which will meet the requirements of a first-class scientific instrument. The meter just described does this.

The discussion can probably be best continued by a de-

scription of the way in which such an instrument is used under different kinds of circumstances. Specific examples of real conditions have a practical value which cannot be equalled by purely hypothetical discussions.

But first we must have in mind the mechanical factors involved in the meter design. The coupling of the sensitive cell and the electric meter involves nothing extraordinary. As has been explained, the electric meter indicates only brightness units. Some experimental meters have been made which indicate the exposure directly on a fixed dial of the indicating meter. This is, without exception, poor practice. The light intensity must be in units which can readily be adapted to any desired lens aperture, shutter speed, and emulsion speed. This can most easily be done by the use of some system of movable scales. In the case of the meter being considered, the dial is so arranged that it may be used for the simplest determination of average exposure, or for the most complex differential determinations, such as might be used when making a negative for pictorial or other illustrative purposes.

The calculator consists of a fixed base plate upon which two movable discs are pivoted (Fig. 9). Two scales are engraved on the base plate; 1 is a scale of light intensities corresponding to the readings obtained from the electrical meter when making the original reading; 2 is a scale of emulsion sensitivity (film speed factors.) Scale 3, a scale of exposure times in seconds and fractions of a second, is engraved on the first or intermediate movable disc. It is arranged so that it may be locked in fixed relationship with the lower scales, according to the sensitivity of the emulsion. This leaves only the second or top disc freely movable. This top disc bears two scales. Scale 4, on the top disc, is a duplex scale, calibrated to correspond to lens apertures, one being an "f" scale, the other a "U. S." scale. The last scale (5) is also on the top disc. It is an emulsion latitude scale, upon which is engraved the index pointer for setting the dials for reading the exposure.

Because all differential exposures must be based upon the emulsion characteristics, the latitude scale is calibrated for this purpose, five reference points being provided. In the center of the range is the pointer marked "B-NORMAL." *This is the only reference point needed for all ordinary exposure calculation!* The remaining four reference points are provided only for those who have special problems in exposure, such as will be explained later.

The four other reference points may be designated A', A, C, and C'. A and C are so indicated upon the actual dial, while A' and C' are not. We make use of these symbols merely to indicate the outer points for convenience.

Reference to the illustrations will make the following case descriptions easier to follow.

**SPECIFIC EXAMPLES.—Normal Exposure** (Average exterior) (Fig. 9). The subject of the photograph is a landscape with nothing of importance in the extreme foreground. The landscape is of that type usually referred to as an "average open landscape," and may be considered as representing at least half of the exterior photographs made by the average amateur.

The cell receives light through an angle of sixty degrees (the angle of a piece from a pie which has been cut into six equal pieces). Because of this, the cell should not be held vertically, but inclined so that it faces the ground more than the sky. The angle of inclination should be about ten to fifteen degrees from the vertical. If the cell is held vertically, half of the light reaching it comes from the sky and the result is that the light value is too high and the meter indicates an exposure somewhat shorter than is correct.

Holding the cell at a slight angle as directed, we find that the meter pointer indicates 130. This means that the scene has a brightness factor of 130.

As the camera is loaded with supersensitive panchromatic film, the pointer of scale 3 has been set opposite the S. S. panchromatic factor (24) on scale 2. This was done before starting out to make photographs; so as soon as we see the reading 130, the reference point B-NORMAL of scale 5 is set op-

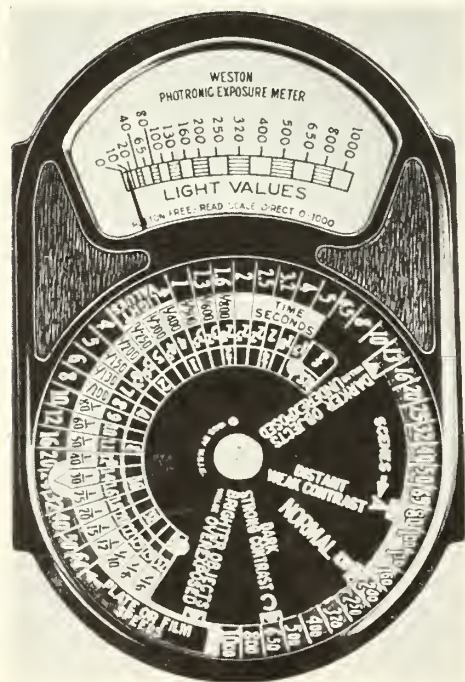


Figure  
12



posite the factor 130 on scale 1. When this has been done we find the aperture values lined up opposite their appropriate shutter times, among which we find  $f:16$  opposite  $1/15$  (Scales 3 and 4). We may also use  $f:6.3$  at  $1/100$  or  $f:3.5$  at  $1/300$ , according to circumstances. Because there is usually some factor such as depth of field desired, or speed of motion of the subject, to make preferable some definite aperture or time, we have but to use the combination which includes the preferred factor.

In this case only one dial adjustment has been needed, and the whole operation can easily be performed within the space of ten seconds!

**Excessive Contrast in Subject.**—Assuming a similar landscape in intense sunlight, with objects in the foreground including heavy shadows, it is probable that the brightness range in the original is greater than the latitude of the emulsion, as has already been explained in connection with the experimental emulsion. However, it is easy to determine definitely whether or not this is the case.

The extreme reference points A' and C' include the latitude range of the average emulsion. Therefore we turn the meter directly to the sky and read a brightness, let us say, of 1000. We notice that reference point C' is marked "Brighter objects will be overexposed." So we set C' at 1000 (Fig. 9).

The next step is to go right up to the deepest shadow. The meter pointer does not move, so the button on the meter is pressed, and we obtain a reading of 2. Reference to the dials shows that while C' is set at 1000, the factor 2 is six spaces outside the limit indicated by A'. We also find that B-NORMAL is opposite 130, thus indicating a normal average exposure.

At this point, for the first time, personal judgement enters into the calculation, but merely as a personal choice. If we decide we can sacrifice the sky detail to obtain more shadow detail, the dial is moved until B-NORMAL indicates 50. Then both 1000 and 2 lie beyond the limits (Fig. 10). The very deepest shadows will still be without detail, and the sky will be slightly overexposed, but a fair balance will be obtained.

In the case of the average exposure, we gave  $1/15$  at  $f:16$ . Under decidedly similar circumstances, we again obtained a reading of  $1/15$  at  $f:16$  (with the extreme sky range barely included), but to include the shadow detail we reset the dial to  $1/6$  at  $f:16$ .

Now there will come the cry: "Two correct exposures for the same subject!" This is not the case. The first was the one correct exposure for the circumstances. In the second case, we are not giving an absolutely correct exposure, but deliberately sacrificing both extremes, shadow and highlight. The change from  $1/15$  to  $1/6$  affects only the intensity ranges between 400 and 1000 (extremes of highlight), while favoring those between 8 and 3.2 in the deep shadow. The rendering of intensities between 8 and 400 will remain undisturbed to any appreciable extent!

Remember that moderate errors of exposure do not seriously affect the middle tones, but become conspicuous in the false rendering of the extremes, and that a good photograph can be recognized by the fidelity with which both extreme shadow and extreme highlight are reproduced.

**Compression Development.**—If it is essential to preserve all of the detail throughout the entire range, and this range exceeds the latitude, as in the last example, we must resort to compression development. In this case the extreme left reference point (A') is set opposite 2 on scale 1 (Fig. 11). This indicates an exposure of  $1/4$  second at  $f:16$ , or almost four times the maximum for the highest light. It is also twice the balanced exposure. Everything of brightness over 250 will be overexposed, and 130 was the average brightness for the whole scene! In other words, we have a case of serious overexposure, in which the detail in the deepest shadow has been recorded.

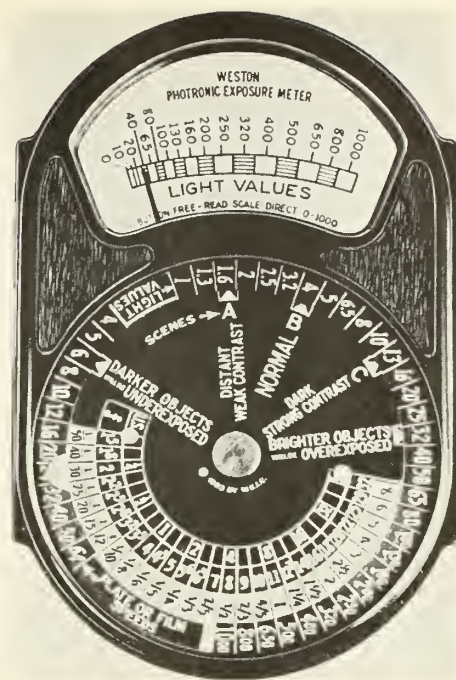
If, however, this film is removed from the developer as soon as the highlights have gained their maximum printing density, all of the detail will be preserved and the negative will have a compressed but proportionately correct tonal scale.

**Selective Exposure Determinations.**—The subject is a person dressed in black and posed against a dark background. A reading from the camera position will include most of the very dark parts of the subject, and an exposure greater than normal will be indicated.

Take the meter to the subject and hold it about eight or ten inches from the face, taking care that you do not cast a shadow on the face. Make the reading from that position and you can determine the proper exposure for the face, disregarding the background.

The habit of making meter readings from the camera position often results in errors. Read from any position which causes the subject to fill the sixty-degree angle of the meter, but be sure to make the reading from the direction of the

Figure  
13



camera, as most subjects reflect light of different intensities in different directions.

**Deliberate Errors in Exposure.**—In making a landscape photograph you may wish to properly expose the scene itself, but you have included a "frame" of a tree branch which extends across the top of the picture. You want this branch to be in full silhouette, with no detail. Assuming an average 130 reading as before, with the extremes reading 8 and 1000 respectively, you find that the shadow side of the branch reads 10. How would you proceed?

It is essential that the branch be underexposed to eliminate detail (Fig. 12). Set the A' index at 13 (more than 10). The exposure is  $1/25$  second at  $f:16$ . The fact that the latitude is now more than sufficient to take care of the extreme sky intensity makes no difference, as everything *except the framing branch* lies within the latitude and will be satisfactorily reproduced.

**Interior Photography.**—Photographs indoors and by artificial light are treated just the same as exterior subjects except that the artificial light factor of scale 2 (emulsion sensitivity) is used.

**Copying.**—The meter is fully as satisfactory in copying and photography of small objects as in more common use. The meter is held close enough to the original so that the original only and not the background is read (remembering the sixty-degree angle). The meter should not be at a distance greater than the diameter or diagonal of the original.

The character of the original will control the dial reading. If the original is pure black and white, such as type matter or a line drawing, use the C reference point (strong contrast). For a photograph of good quality, use B, and for weak or faded originals, use the A point.

Remember that in copy work the bellows length is usually greater than normal. In making a full size copy, for example, the bellows is twice normal length (Fig. 13). Thus if the reading is found to be 4 we find an exposure of eight seconds at  $f:32$ . The diaphragm of the lens is set at 16, *not* at 32, because with a double-length bellows the mark 1 on the lens indicates an actual aperture of 32. The  $f$  number increases in proportion to the excessive length of the bellows.

The meter is adapted to the scientific determination of exposures under practically all conditions, for all types of cameras and lenses and all classes of subject. The meter indication may be depended upon except in those cases where something beyond the usual interferes.

Such a factor is lens brilliance. This is a factor which upsets the assertion often made: that at equivalent apertures all lenses require the same exposure. This statement is not strictly true! No lens transmits all the light that falls upon it. There are losses by absorption and losses by reflection. Unusual lenses will transmit upwards of 80 per cent of the incident light, while some transmit less than half this percentage. If you find that you are underexposing (or less usually, overexposing), check the efficiency of your lens by comparing it with another lens of known quality.

Shutters are also notorious offenders. Rarely do shutters

(Turn to Page 31)



# Some Problems In the Direction of Color Pictures

By ROUBEN MAMOULIAN\*

(Presented at meeting of the Technicians' Branch of the Academy of Motion Picture Arts and Sciences. Courtesy of Gordon Mitchell, Manager Research Council.)



LADIES and gentlemen: As I sit here, I am amazed at the quality and nature of this meeting. I have attended meetings concerning the arts of the theatre, music and literature, but never have I witnessed the overwhelming scientific atmosphere that prevails here. I must say that this unusual atmosphere of the present meeting is characteristic of the whole industry and art of motion pictures.

No art has ever depended so much on science as the art of motion pictures. In that sense it is truly the most modern of arts. It begins where science ends and it has a hard time, and not always a successful time, in artistically keeping up with the progress of the scientific and technical achievements that are taking place constantly in motion pictures.

Seven years ago motion pictures were revolutionized by the advent of sound. Theretofore silent, the screen acquired the gift of speech. Today, as another result of scientific achievement, color comes to the screen and to my mind, it is just as much of a miracle as sound was. I would like to pay my most respectful tribute to those people whose names one doesn't hear who work in the silence and solitude of their laboratories. I refer to the scientists that compose the body of Technicolor, whose destinies are guided by Dr. Kalmus.

*"Will Color Last?"*

Now the main question today is: "Will color last or will it not?"

I have no doubt that color on the screen is here to stay. I have also no doubt that there will be as much skepticism for the first few months in regard to color as there was in regard to sound.

Some say that what we haven't got, we don't miss. No one ever missed electricity until it came to replace oil and gas. No one missed dialogue on the screen while the screen was silent. However, let a dumb man, after thirty years of life acquire the gift of speech, would he want to give it up and go back to his silence? Speech came to the screen and stayed—victorious. Now, let a man with ailing eyesight wearing black glasses through which the world looks grey, suddenly recover his sight, throw away his glasses and see the luxury of the color of the sky, the earth and the flowers; would he ever want to go back to his black glasses?

We never missed color on the screen because the very art of the cinema was born black and white. It was a convention which had to be accepted, but once real color comes on the screen, we shall feel its absence as forcefully as we feel the absence of sound when looking at a silent film made some years ago.

I do not mean to say that necessarily all the films will have to be in color, but certainly the great majority of them will be. As in the art of painting, while we admire and love black and white drawings and etchings, could we ever do without paintings? So far the screen has been using a pencil; now it is given a palette with paints.

I don't want to be misunderstood. I don't want to imply that the black and white film is not beautiful nor that the color film completely displaces the black and white. As a matter of fact, the black and white has a beauty of its own that could never fade away. The very unreality of those pale shadows moving on the screen and that remote quality of a dream, constitute

the attraction and the spell of the black and white film that could not be destroyed. There will always be room for certain subjects to be treated in terms of these fascinating grey shadows. But color comes to the screen now as a new spring to the earth. It comes as an inspiring and exciting gift, which opens new horizons or creation for the artist and enjoyment for the onlooker.

I am stating this now not merely as a theoretical point, but as a result of an actual experience I went through recently. This experience was directing "Becky Sharp," the first full-length feature in color. That was a new and wondrous adventure. It had all the thrill and excitement of pioneering in a new field and discovering a theretofore unexplored fairyland.

*Color a Vital Factor of Everyday Life*

Color is one of the most powerful and fascinating attributes of nature. Just imagine what the world would look like if you took color out of it. What would life be if we were forced to spend it among sky, trees, flowers and all things black, grey and white! Having known the living joys of color, we would probably die of melancholia.

Love of color and susceptibility to color is one of the strongest instincts in human beings. If you want to discover the most organic, basic elements of the sophisticated human being of today, go to children and go to savages. You will find that next to food, they love things of vivid color and sparkle. That instinct is alive and strong in every one of us.

In relation to motion pictures, our need for color has so far been ungratified. We accepted the situation just as we had accepted the fact of moving on solid ground until we learned to fly. But once color comes to the screen, we will be unhappy without it. It brings a new terrific power to the screen. Our strongest impressions come through vision. So far visually, we are dealing with light and shade and compositions on the screen. Now we have an additional element of color. This, not merely to superficially adorn the images in motion, but to increase the dramatic and emotional effectiveness of the story which is being unfolded to the spectator.

Color, like all power, can be harmful and destructive when used badly, life-giving and creative when used well. Animals and human beings have always been and are unconsciously subject to a hypnotic influence of color. How many times have you walked into a strange house and felt depressed because of the color of the wall paper?

## *The Last Word*

In Sound Recording

### THE NEW PRINCIPLE MINOR QUARTZ OPTICAL UNIT

becomes an integral part of your sound recorder—this unit is cemented into a steel block—it focuses a beam of light of great intensity and actinic value a distance away and on the film, which PROVIDES CLEARANCE and PREVENTS SCRATCHING of the sound track. The width of the beam of light measures from .0005" to .0008" as it strikes the moving film.

This Quartz Optical Unit was used for the sound effects in the recent production of the "Tarzan" picture, filmed in Guatemala and referred to in the March issue of International Photographer.

Send for details and specimen of sound track.

**C. C. MINOR**

1835 Whitley Avenue

Phone: GR. 4781

Hollywood

\* Director of "Becky Sharp," the first three-color feature motion picture.



How many times have you found consolation in the rich riot of shades of a gorgeous sunset?

Apart from pure pictorial beauty and the entertainment value of color, there is also a definite emotional content and meaning in most colors and shades. We have lost sight of that because like all important and inevitable phenomena, it has become subconscious with us. It is not an accident that the traffic lights of a city street today are green for safety and red for danger. Colors convey to us subtly different moods, feelings and impulses. It is not an accident that we use the expressions "To see red," "to feel blue," "to be green with envy" and "to wear a black frown." Is it for nothing that we believe that white is expressive of purity, black of sorrow, red of passion, green of hope, yellow of madness, and so on.

The artist should take advantage of the mental and emotional implications of color and use them on the screen to increase the power and effectiveness of a scene, situation or character. I have tried to do as much of this in "Becky Sharp" as the story allowed. To quote an example of this, I would refer to the sequence of the panic which occurs at the Duchess of Richmond's ball when the first shots of Napoleon's cannons are heard. You will see how inconspicuously, but with telling effect, this sequence builds to a climax through a series of inter-cut shots which progress from the coolness and sobriety of colors like grey, blue, green and pale yellow, to the exciting danger and threat of deep orange and flaming red.

The effect is achieved by the selection of dresses and uniforms worn by the characters and the color of backgrounds and lights. There is a little of homecoming feeling in this for me as the use of color and colored lights was one of my main joys and excitements in the theatre. Surely, the effectiveness of productions like

"Porgy," "Marco Millions" and "Congai" which I have done in the theatre world would have been sadly decreased if I were forced not to use color in sets, costumes and lights on the stage.

#### *Some Stories "Natural" for Color Treatment*

Of course, in each art, different subjects are expressed best through different forms. Undoubtedly, there are some stories which beg for color on the screen more than others do. Off-hand, a story of historical period of the past, when life and clothing were much more colorful, or stories with the backgrounds of countries like Spain and Italy, even of today, would ask for color more than some stories of our modern age and civilization.

The black and white films will still have their place on the screen, but most assuredly as time goes by, there will be less of them and more of the color pictures. For even though our life today is grey (and because of that) we have a great love and longing for color. Is it not to be more attractive that women dress their bodies in beautifully shaded gowns and touch their faces with the subtle magic of a discriminate make-up? Is it not the same impulse that drives the grey and tired families of working-men out to Sunday picnics somewhere where there is a touch of blue sky, a green blade of grass, a tree or a flower?

Everything that is beautiful to the eye is a great gift to humanity. Color on the screen is such a gift. The only danger of it that I can see during the first stages of the color picture, would be the danger of excess. Talking pictures did not avoid it during the first months of their existence. There was too much talk and too much noise on the screen. The cinema must not fall into another trap and must not go about color as a newly-rich. Color should not mean gaudiness. Restraint and selectivity are the essence of art.

## SPEED-PANCHRO

### For Today's Lighting, Today's Colors

The technical perfection of Cooke F:2 Speed Panchro Lenses for modern lighting and color lies in their special correction for blue and red rays rather than for blue and yellow. The maximum variation in chromatic focus is, for instance, but .001-inch in the 3-inch lens working at F:2. These lenses are supplied in eleven focal lengths from 24 mm. to 108 mm. Cooke F:2.5 Panchro lenses offer the same correction. Seven focal lengths—35 mm. to 162 mm.

#### B & H Cooke Varo Lens

The B & H Cooke Varo lens continues to pile up new and amazing photographic effects requiring "zoom" from a fixed camera position.

At F 3.5 the range of the Cooke Varo Lens is from 40 mm. to 50 mm.; at F 4.5 from 40 mm. to 85 mm.; and at F 5.6 and F 8 the full "zoom," from 40 mm. to 120 mm., is obtainable. Adjustable stops limit the "zoom" as desired. One crank controls all moving parts. The iris is varied automatically with the focal length to keep the  $f/\text{value}$  constant. Gives critical sharpness and full anastigmat correction at all points of the "zoom." Close focusing is done with auxiliary lenses. Write for full details. Sometimes available on rental to responsible studios.

#### BELL & HOWELL COMPANY

1849 Larchmont Ave., Chicago; 11 West 42nd St., New York;  
716 North La Brea Ave., Hollywood; 320 Regent St.,  
London (B & H Co., Ltd.). Established 1907

## HOLLYWOOD AT THE SAN DIEGO EXPOSITION

(Continued from Page 12)

of association with the motion picture know the movie making and give an authentic demonstration of how it is really done in the studios.

In fact the show is so real, one well known member of the studio colony who should really know made the statement to me: "Why, they are really taking pictures; I thought they were just going to go through the motions."

The equipment and appurtenances on the set are the conventional devices used in the studios. Mole-Richardson supplied the lights, Mitchell Camera corporation supplied the camera and lenses, RCA-Victor supplied the sound paraphernalia, and Cannon Electric Development Company loaned a sound boom. As is known these companies supply the standard equipment used in picture making.

Noted stars and big names regularly appear before the camera. Merv Freeman, the Universal Newsreeler on the Coast, on seeing the show, remarked: "Why, you've actually got a million dollars worth of talent for your show." What he meant was the studios would have to pay that for the players who are appearing. The stars go to San Diego for a lark and to see the Exposition. Warren Williams, Thelma Todd, Anita Louise, Estelle Taylor, Lee Tracy, Ralph Morgan, Jean Hersholt, Mae West, and dozens of others have appeared and have conquered—I mean they were swamped with attentions and autograph hunters.

Many times while standing around, I would feel a tug which I knew was just someone again borrowing my pencil. Looking around, I would always see a fan who had borrowed my pencil for an autograph. Since the fan was always well on his way by the time I looked around, and since I did not trust the gleam in his eye, I assented and tried to follow him through the crowd to get my pencil back.

Yes, often, when the fan was very young and not equal to the crowd, I carried him to his autograph victim. That always helped me to get my pencil back sooner. I mean by "very young" the youngsters who are too short to see in which direction to go in the crowd. Often I have noticed them going in the wrong direction.

The most successful of the genus autograph hunter is about ten or twelve years or over sixty years. Before twelve, he has had little time to read Emily Post, nor is he conscious nor cares for such details in his hunt for the autograph. Over sixty, the autograph fan has either forgotten or doesn't care. Between those ages, I have noticed the species seem rather timid.

In the exhibit section of the Hall of Fame may be seen cross-sections of some of the studio departments. The "prop" room is a replica of a conventional prop room in a studio. Like in the Hollywood studios, the Hall of Fame prop room has props from famous pictures. In fact, each item was used in a famous picture. Visitors may identify the items which are numbered.

The Editing Room is supplied with the Sound Moviola, Bench Moviola, and Synchronizing Moviola and so forth. The tables, film bins, racks, and cabinets were made by Worley and Company who make such items for the studios. The whole room is complete in every respect to the room where the films are edited and cut.

Walt Disney reproduced one of his "Animator's Rooms" which shows a room where Mickey Mouse is drawn. Walter Lantz supplied materials for another part of the exhibit which portrays the steps in the making of an animated cartoon from the gags, manuscript to the

finished picture. Charles Mintz Studios made available devices which are used to make cow noises, dog barks, lion roars, fire, airplane, railroad, and many, many other noise devices.

In a glass encased room are costumes worn by stars in notable productions such as Wally Beery in "Viva Villa," Mary Pickford in "Secrets." Other costumes are from Mae West, Claudette Colbert, Freddie March, Marlene Dietrich, Gary Cooper, and many others. The costumes were supplied by the stars themselves, Paramount, RKO-Radio, and by Western Costume Corporation. Wax figures were supplied by the Stubergh Studio. A second costume display was made by Metro-Goldwyn-Mayer. It consists of costumes designed by Adrian for the noted M.G.M. players. The display has a classic Grecian setting in white, the costumes along with the drawing from which they were made being set in an atmosphere of white columns. The women appreciate the beauty of this exhibit. Bernard Newman of RKO-Radio made available the series of drawings used in designing the costume worn by Ginger Rogers in "Top Hat." The drawings along with a picture of the finished costume is shown in this display which portrays the evolution of a costume. Another display from RKO-Radio shows how a set is made from the description in the manuscript to the finished set.


Props from Eddie Cantor's "Kid Millions," Cecil B. deMille's "Crusades," R.K.O.'s "She" and many, many other pictures are represented.

Charlie Chaplin's costume and props from many of Charlie's famous films may be seen. The pen used by Mary Pickford to autograph, according to her estimate, over 100,000 fan photos is on display.

Besides the full size, complete sets already mentioned, Cecil B. DeMille, and Universal also made available sets from current pictures.


These are only a few of the thousands of items which may be seen.

A trip to the exhibit would be worth while even to the members of the picture colony. In order to give some idea of the popularity of the show and the enthusiasm of the guests, three show cases were broken, and the standards which held the rope lines were all broken. All the cases were covered with nose marks where the fans tried to get just a bit closer to, for example, Mary Pickford's curls, Fred Astaire's Dancing Shoes, or Mae West's Hat. The Motion Picture Hall of Fame covers approximately 15,000 feet of floor space.



**EVERYTHING  
PHOTOGRAPHIC**  
for Professional and Amateur

New and used. Bought, sold  
rented and repaired. Designers  
and manufacturers of the  
H.C.E. Combination Lens  
Shade and Filter Holder  
for any size lens.  
Send for bargain catalogue  
**Hollywood Camera  
Exchange**  
1600 Cahuenga Blvd.  
Hollywood  
Tel.: HO-3651  
Cable:  
**HOCAMEX**







*The Supreme Negative—*

EASTMAN  
*Super X*

J. E. BRULATOUR, INC.

# Fred Westerberg Is Back Again

## CHECKING THE CAMERA SPEED 35 mm. FILM FOR CAMERA SPEEDS BELOW NORMAL

Camera Speed in Pictures Per Second	Relative Camera Speed	Relative Velocity of a Moving Object on the Screen	FEET OF FILM TIMED			
			1	5	10	15
			STOP WATCH READING IN SECONDS			
24	1.00	1.00	...	3.3	6.7	10.0
23	.96	1.04	...	3.5	7.0	10.4
22	.92	1.09	...	3.6	7.3	10.9
21	.87	1.14	...	3.8	7.6	11.4
20	.83	1.20	...	4.0	8.0	12.0
19	.79	1.26	...	4.2	8.4	12.6
18	.75	1.33	...	4.4	8.9	13.3
17	.71	1.41	...	4.7	9.4	14.1
16	.67	1.50	...	5.0	10.0	15.0
15	.62	1.60	...	5.3	10.6	16.0
14	.58	1.71	...	5.7	11.4	17.1
13	.54	1.85	...	6.2	12.3	18.5
12	.50	2.00	...	6.6	13.3	20.0
11	.46	2.18	...	7.3	14.5	21.8
10	.42	2.40	...	8.0	16.0	25.0
9.6	.40	2.50	...	8.3	16.7	26.6
9	.37	2.66	...	8.9	17.8	30.0
8	.33	3.00	2.0	10.0	20.0	34.4
7	.29	3.44	2.3	11.4	22.8	40.0
6	.25	4.00	2.7	13.3	26.6	50.0
4.8	.20	5.00	3.3	16.7	33.3	60.0
4	.17	6.00	4.0	20.0	40.0	.....
3	.12	8.00	5.3	27.0	53.0	.....
2.4	.10	10.00	6.6	33.0	.....	.....
2	.08	12.00	8.0	40.0	.....	.....
1	.04	24.00	16.0	.....	.....	.....

## CHECKING THE CAMERA SPEED 35 mm. FILM FOR CAMERA SPEEDS ABOVE NORMAL

Camera Speed in Pictures Per Second	Relative Camera Speed	Relative Velocity of a Moving Object on the Screen	FEET OF FILM TIMED			
			30	40	50	100
			STOP WATCH READING IN SECONDS			
24	1	1.000	20.0	26.7	33.3	66.7
30	1¼	.886	16.0	21.4	26.7	53.3
36	1½	.750	13.4	17.8	22.3	44.5
42	1¾	.571	11.5	15.3	19.0	38.0
48	2	.500	10.0	13.4	16.6	33.3
54	2¼	.444	8.9	11.8	14.8	29.6
60	2½	.400	8.0	10.6	13.3	26.6
66	2¾	.364	7.3	9.7	12.1	24.2
72	3	.333	6.7	8.9	11.1	22.2
78	3¼	.306	6.2	8.2	10.2	20.5
84	3½	.286	5.7	7.6	9.5	19.0
90	3¾	.266	5.3	7.1	8.9	17.8
96	4	.250	5.0	6.7	8.3	16.6
102	4¼	.235	4.7	6.3	7.8	15.7
108	4½	.222	4.4	5.8	7.4	14.8
114	4¾	.210	4.2	5.6	7.0	14.0
120	5	.200	4.0	5.3	6.7	13.4
126	5¼	.190	3.8	5.1	6.3	12.7
132	5½	.182	3.6	4.9	6.1	12.2
138	5¾	.174	3.5	4.6	5.8	11.6
144	6	.167	3.3	4.4	5.6	11.1
156	6½	.154	3.1	4.1	5.1	10.2
168	7	.143	2.9	3.8	4.8	9.5
180	7½	.134	2.7	3.6	4.4	8.9
192	8	.125	2.5	3.3	4.2	8.3
204	8½	.118	2.4	3.2	3.9	7.8
216	9	.111	2.2	3.0	3.7	7.4
228	9½	.105	2.1	2.8	3.5	7.0
240	10	.100	2.0	2.7	3.3	6.7

These two tables constitute a welcome addition to Mr. Westerberg's most helpful little book, "The Cinematographer's Book of Tables," now of world-wide popularity. At your dealer's or 1605 Cahuenga Blvd. Only \$1.00.



**MAX FACTOR'S**  
NEW  
*Satin Smooth*  
**LIQUID FOUNDATION**  
A REVELATION IN FACIAL MAKE-UP



---

# BIG NEWS

---

WITHOUT a doubt Super X Panchromatic Negative is the big news of the year as far as raw film is concerned. Its unprecedented speed...its fine grain...the improved photographic quality cameramen are getting with it under greatly varying working conditions...these factors point to Super X as 1935's major film advance. Eastman Kodak Company, Rochester, N. Y. (J. E. Brulatour, Inc., Distributors, New York, Chicago, Hollywood.)

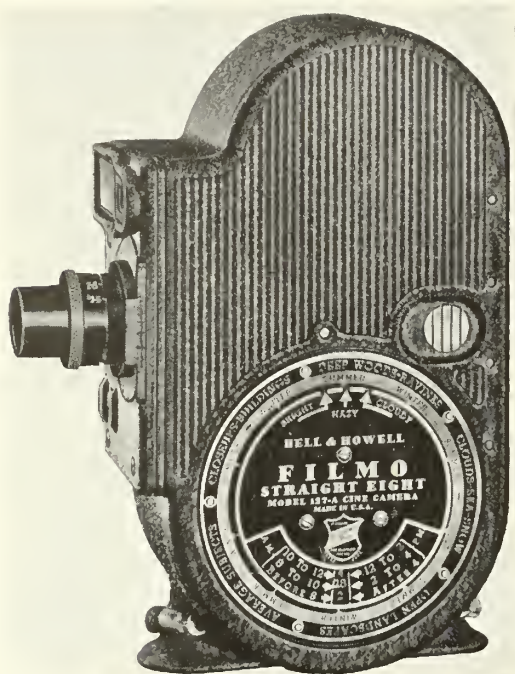
---

**EASTMAN *SUPER X***  
**PANCHROMATIC NEGATIVE**

## BELL & HOWELL ANNOUNCES 8 MM. CAMERA

The Bell & Howell Company has announced that it will have an 8 mm. motion picture camera in production within a few weeks. Samples are now being distributed among dealers. More than three years of engineering development, Bell & Howell report, have preceded this announcement.

The new camera is known as the Filmo Straight Eight. It uses a new film, Bell & Howell Filmopan, a fine-grain reversible panchromatic film which is presplit and packed for daylight load-



ing on spools containing 30 feet of usable film plus 2 feet for loading and unloading. This film costs only \$1.45 per spool, and so provides an attractively low operating cost for the new camera.

Small size, light weight, provisions for extremely simple loading and operating, and the scientific design and Bell & Howell precision construction which make for fine picture results and a long life of dependable service are other advantages emphasized in the manufacturer's announcement of the new 8mm. camera. The weight is only 24 ounces; the size is one and three-eighths by three by five inches.

The camera is easily and quickly loaded. There are no sprockets to thread, no film loss to form. The film spools are placed on the spindles—they cannot be placed there other than correctly—and the camera is loaded! When the permanently-attached hinged door of the camera is opened, the film gate springs open, ready to receive the film. The gate is closed by the shutting of the door. The footage dial is automatically reset to 0 when 30 feet of film have been exposed, and, as it is inoperative when the camera door is open, need never be reset by hand.

A 12 and one-half mm. F 2.5 anastigmat lens in universal focus mount is standard equipment. Its graduations extend through 180 degrees, making for easy setting. Extra lenses to be available later include: 1-inch F 2.7, 1 and one-half-inch F 4.5, and the same three focal lengths in larger apertures. Filmo 70 and 75 lenses will later be adaptable to the 8 mm. camera.

Lens interchangeability is made quick and easy by a spring lock. One merely presses two knobs together to release or replace the lens.

There are four speeds—8, 16, 24, and 32 frames per second. Winding is easy and silent by means of a permanently-attached, non-rotating key that folds flat against the side of the camera. The spring motor is automatically stopped well before exhaustion of its power, to prevent loss of speed at the end of the run. There is also means to prevent the end of the film from leaving the gate after the film is all exposed. This insures the film's remaining tightly wound on the spool, so that it will not be fogged when the camera door is opened for unloading.

Spyglass viewfinder and built-in exposure calculator are standard features.

Rock-steady 8 mm. pictures can be obtained, under present film perforation tolerances, only by having the camera which takes them and the projector which shows them matched, one with the other, as to the method of film registration at the aperture. This all-important matching is fully accomplished in the Filmo

## THE ROLLEIFLEX SALON

One of the important photographic events of 1935—the Rolleiflex Salon—has recently ended. Hundreds of photographs of unusual quality were submitted by amateurs from all parts of the country. Although the values of the prizes offered, the elimination of the customary entry fee, and the outstanding reputation of the one-man jury, Colonel Edward Steichen, were factors which undoubtedly stimulated the entrants to high standards of achievement, the photographs displayed owe in no small measure, their pictorial beauty and their critical sharpness to the performance and unusual characteristics of Rolleiflex Cameras, the square format and large size of the pictures produced, and the ease with which Rolleiflex photographs may be enlarged.

The first prize was awarded to ALAJOS SCHUSZLER, of Brooklyn, N. Y. His picture entitled "A RARE SIGHT IN NEW YORK" was aptly named, for it is indeed a rare sight to witness in that highly mechanized city the closely juxtaposed heads of two horses immersed in a drinking fountain. The enlargement has a practically contact print quality and was consummated with a Brooks Enlarger. Visitors at the Salon concurred wholeheartedly with Colonel Steichen's selection. Mr. Schuszler should have an ideal opportunity of adding to his collection of Rolleiflex shots on the eighteen-day Caribbean Cruise on the S.S. PASTORES of the Colombian Line, which was the first award.

A merchandise award of \$75.00 was given to Mr. Alex J. Krupy, of Chicago, for his picture "FORCE"—a powerful and graphic interpretation of machinery. Fred Chaddee, also of Chicago, won the third prize of \$25.00, for his "Girl with Goat," a spontaneous, happy and unposed picture of a lovely child with her pet, and John Coleman Burroughs, of Los Angeles, was awarded a Rolleicord Camera, as the prize for his aerial subject, "Meteor Crater, Arizona."

Numerous participants were made happy by a scattering of smaller prizes and these were justified in their choice of the Rolleiflex as the picture-making medium best adapted for capturing the beauty of people, scenes, and subjects with graphic and life-like fidelity.

Winning prints will be submitted for the ROLLEIFLEX GOLDEN BOOK, the most elaborate edition of this series ever produced, and makers of selected photographs will receive in addition to the Salon awards, sums ranging from \$10.00 to \$20.00, as well as a complimentary copy of the book, when it appears.

Eight Camera and Projector. Both use the same film perforation for the pull-down, and the same film edge for side guiding. In both, the side guides and the side tension springs are of the same size and location. These provisions minimize any unsteadiness caused by film perforation and film width variations.

The Filmo 8 mm. Camera is finished in rich brown crinkle-baked enamel with black and plated fittings. It has a sturdy die-cast aluminum-alloy housing.

Filmopan film for this new 8 mm. camera is processed, without additional charge, in New York, Chicago, Kansas City, and Los Angeles, and in stations in most countries outside the United States.

The subscription price of THE INTERNATIONAL PHOTOGRAPHER is \$2.00 per year. Subscribe now if you want to get in on this reduced rate.

Scheibe's FILTERS

In World-Wide Use

produce Moonlight and Night Effects in Daytime-Fog Scenes-Diffused Focus, and many other effects With any Camera-In any Climate

George H. Scheibe

ORIGINATOR OF EFFECT FILTERS  
1927 WEST 78TH ST. LOS ANGELES, CAL.

SINCE 1916

HOLLYWOOD STUDIOS USE THEM IN EVERY PRODUCTION



# CINEMA CARONI

By ROBERT TOBEY

(With sauce for those who like it.)

## HOLLYWOOD HONEYMOON

(A novel novel of a thousand and one nights in a daze)

by

R. THRITS

Lili Liverblossom, star of Flamboyant Films, Ltd., enlists the aid of a ghost writer named

Bill, whose mother never was quite sure of his last name. Lila asks Bill to write her up a ghost to use in her attempted rescue of

Perriwether Murgle, her press-agent. Perri, hanging from the wall of an apartment house, and in danger of a serious fall, by a ruse induces

Willy Nilly, a large Bald Eagle, to rescue him. Perri claims he has a fluid to cure baldness. Willy Nilly, falling for the ruse, carries Perri down off his dangerous perch, but instead of putting him down on the ground, starts to carry him off across a desert near Hollywood. We've been so concerned with Lili's troubles that it's six months since we've written anything about Perri, and by now the Eagle is pretty darn tired of carrying Perri around. And so am I. Pick up the threads from here.

### CHAPTER IX—DESERT MADNESS

Willy Nilly's every muscle ached. After all, carrying a full-grown press-agent such as Perri, who was probably full of beer and pretzels to aggravate matters, for a matter of six installments, isn't something you can pull off with a mere twist of the wrist. Besides, the Eagle had no wrist, strictly speaking.

So Willy Nilly swooped toward the nearest hillock, and set Perri down on the sand.

"Thanks," said Perri, adjusting his vest and starting to climb down the hill. "But you brought me a little out of my way, don't you think? Not that I wish to seem ungrateful," he added hastily.

The Eagle glared at him. "Stay where you are," he snapped. "Going to run out on me without letting me in on that cure, eh? I'll just keep you around for awhile—how do I know that stuff of your grandfather's will work? I know you Hollywood chaps—just a bunch of windbags, generally."

Perri turned slightly pale, but a press-agent always thinks of all the angles. "Suppose you know the penalty for kidnapping, Willy Nilly?" he asked suavely.

"Don't give me that!" sneered the Eagle. "You're no kid."

Perri had no answer for that. Too often had he said the same thing himself, to certain of his acquaintances. "How about a treatment right now, if you're so skeptical?" he queried.

"Sure thing," said Willy Nilly, preening himself. "Rub it on, kid."

"It has to be applied both externally and internally, you know," said Perri, cautiously dragging out his bottle of pre-repeat Scotch. He rubbed a little of it on Willy Nilly's bald pate, slyly taking a swig of the stuff himself as he did so. A few drops trickled down over the Eagle's face, and a look of startled delight passed over his somewhat repellant features as he licked his beak.

"Er—did you say an internal application was necessary," he inquired artlessly.

"Sure," said Perri. "Tip your head back."

And as the Eagle obeyed with alacrity, Perri poured a big slug of the potent liquid down the Eagle's throat.

"Wow!" said the Eagle, when he caught his breath. "That stuff would raise hair on a billiard ball."

"Stealing my lines," muttered Perri. Aloud he said politely, "Have another nip?"

Almost rudely the Eagle snatched at Perri's bottle. A generous portion of the contents gurgled down his throat.

"Hic!" he exclaimed.

"I'm a farm boy myself," said Perri deprecatingly, more to be sociable than anything else.

(And that's the way we will leave them, more sociable than anything else—yet. What will become of Perri and the Eagle, inebriated on the California desert? Will Lili be able to find them and rescue Perri? Ask me another next month!)

News report says they are about to complete "ANNAPOLIS FAREWELL" with Guy Standing.



That's just as it should be. Any gentleman should rise for a farewell.

### HOLLYWOOD STORY IN THREE PARTS

I. Miriam Hopkins never gambled. She never showed up at Caliente, and couldn't be lured to a roulette wheel.

\*\*\*

II. Miriam Hopkins was chosen by Sam Goldwyn for the lead in "BARBARY COAST"; the part she was to play—a lady croupier, a gambler's gal who could make a roulette wheel do everything but sing "La Boheme"! A real honest-to-gosh croupier from the days of the Barbary Coast was hired to coach Miriam in the gentle art of twirling a wheel neatly and with despatch. Miss Hopkins had to spend hours learning the knife-like niceties of a game she despised.

\*\*\*

III. Miriam Hopkins is now wild about roulette.

"THE MACARONI BOWL," by the Shovel Boys (they dish it out). \*\*\* After a considerable absence from the screen, Elissa Landi comes back for a fresh start. By now she should have her teeth well into the lead in "WITHOUT REGRET" for Paramount, as she was scheduled to start on June 20. And it is without regret your little scribe hears of this, as she is one of his favorite gorgesities of the silver sheet. I was afraid for a time that bad publicity and a studio squabble had caused her to drop from pictures. Not that that would bother Elissa much, as she has plenty to do to occupy her spare time. She is a writer and composer of music, and in addition has enough pets around her beautiful Santa Monica estate to keep her busy every minute if she fed them all herself.

\*\*\*

Leo Carrillo has just signed a three-year contract with Columbia Studios; he is to make two pictures a year, with the rest of the time to do as he pleases. Pretty lucky for both Leo and Columbia, I'd say. \*\*\* Lupe Velez is reported going on the air in Buenos Aires, Argentine, sometime in August. Lupe will have fun broadcasting in her native lingo. They'd better give her an iron-bound script, or the Aires won't be so Buenos around there if our little Mexican Spitfire starts ad libbing. \*\*\* Margaret Lindsay, the vitality gal who decorates the silver screen of the Related Warner Boys, is busy entertaining a friend from Boston. With that English accent that started Margaret on the road to stardom, she should have no trouble understanding the lingo of her friend from the "Land of Ha'ra'd."

\*\*\*

The San Diego Exposition is doing a rushing business, and the Motion Picture Hall of Fame seems to be getting a bigger play than any of the other concessions. Seems everyone wants to see how motion pictures are made, and Richard Tucker, with the able aid of a group of real actors and technicians, certainly shows 'em. In one of the actual sets from Columbia's recent production "LOVE ME FOREVER," that has been transported to and set up in the Motion Picture Building, Tucker directs a sequence that shows the onlookers just how sound pictures are made. \*\*\* In other part of the building, Earl Theisen supervises a collection of motion picture what-nots that is unique. He has collected everything from one of Mary Pickford's curls to Charlie Chaplin's famous scarecrow clothing, and everyone finds something to exclaim over in the collection. \*\*\* The number of celebrities at the opening of the Fair rivaled a Hollywood premiere. Francis Lederer, Anita Louise, Robert Young, Katherine de Mille, Victor Jory, Tala Birell, George Murphy, Lee Tracy, Thelma Todd, Lucille Gleason, and Ralph Morgan were a few of those present. \*\*\* One youngster at the

Fair came up to Victor Jory and said, "How did you get in—over the fence? That's all right for us fellows, but it's kinda tough on our girls." \*\*\* Another young fellow asked Lee Tracy if "Binge" Crosby was going to show up. \*\*\*

It is with profound regret that we view June, the month of Brides, in retrospect, and find that there have been no marriages of consequence in Cineland. After all, Hollywood can't keep up with its divorce schedule that way!

Aw, Lili Damita spoiled my gag. She went and got married just as I was writing that. She flew to Yuma and got hitched to Errol Flynn.

Nothing fancy about those two. Just a plane wedding.

Here we have practically a complete short story in these four pictures titles accidentally grouped together on the schedule sheet of a prominent studio:

UNKNOWN WOMAN  
LOVE ME FOREVER  
CHAMPAGNE FOR BREAKFAST  
AFTER THE DANCE

\*\*\*

While this one isn't a bady story either: "SHE MARRIED HER BOSS, NO. 26"

### KNEECAP REVIEWS

(No space left on my thumb-nails)

If you ever doubted that Al Jolson is a good entertainer, just see the way the Related Warner Boys wrap him up and deliver him in the little celluloid package called, "GO INTO YOUR DANCE." You'll never doubt again. There's much fun and no little drama in this sparkling tale of a Broadway swelled headliner who gets the inflammation soaked out of him in the way Broadway knows best.

Ruby Keeler plays opposite Jolson, and has legs that are positively delicious, and tosses 'em around like a mean, mean gal, and I don't mean improper. Helen Morgan, she of the sad, sad songs, contributes a worthy performance.

In a few spots I thought there was an extra chorus or two by Jolson that could have been judiciously deleted, and the picture slowed up a little near the end when Busby Berkeley got in his deadly work and threw in one of those impossible, ridiculous dance sequences as big as all outdoors; but just close your eyes for a few minutes as those spots go by and you'll have a swellegant time.

\*\*\*

If you want to shudder yourself to sleep, just see "THE WEREWOLF OF LONDON." Fantasy such as this is difficult to handle realistically, but superb mechanistic treatment and a convincing portrayal of the Werewolf character by Henry Hull make the picture seem alarmingly real. One of the best of the thrillers.

"LOVE ME FOREVER"—the fans will love it. Grace Moore gives unstintingly of her glorious voice; and story, direction, and photography are excellent.

I can't imagine a finer performance on the part of Steve Correll than that given by Leo Carrillo. He is so delightfully real in the character that it would not surprise me if he steals the picture in the fans' estimation. Only Carrillo could do justice to the part and the story, so I can't tell you about it—you'll have to see it for yourself.

### HE KNOWS WHAT TO DO

NEWS ITEM: John P. Medbury washes up at Paramount today after completion of "SOUP TO NUTS."

\*\*\*

Any on your vest, John?

### FAMOUS FINALES

Psst! Mary, that gal siting next to us looks like the leading lady we've been panning all through this picture.



## MOTION PICTURE SOUND RECORDING

(Continued from Page 7)

ing waves that might otherwise come to exist in the space between the diaphragm and the damping plate.

*Pressure Compensating Arrangement*

Directly back of the damping plate is a small open space, which is connected by means of an arrangement that Mr. Jones of the Bell Telephone Laboratories calls an acoustic valve with a still larger space in the rear part of the transmitter. This larger space is divided across the middle by what is known as a compensating diaphragm; and the outer half of the space is connected with the outside air by means of a tiny hole in the back of the transmitter.

The purpose of this compensating diaphragm, which is made of an organic material, is to equalize the pressure between the outside air and the gas-filled space within the transmitter, without permitting air, moisture, or foreign material to pass through into the space between the diaphragm and the back plate. In other words, it hermetically seals the gas chamber; yet the stiffness of this compensating diaphragm is low enough to permit it, by bending, to compensate for all normal changes in barometric pressure.

The acoustic valve, which is also called a breather valve, is located between this compensating diaphragm and the back plate. Its purpose is to permit compensation for atmospheric pressure changes in the space between the diaphragm and the back plate by permitting the gas in the transmitter to leak through it when a slow, steady pressure is applied; but not to allow the gas to pass so readily that the sudden pressure of a sound wave on the diaphragm would force the gas through this valve. As Mr. Jones explains it, the impedance (opposition) of this path is high at voice frequencies but sufficiently low to a steadily applied pressure. This acoustic valve maintains the volume of gas within the actual condenser portion of the transmitter constant for all sudden changes of pressure, and thereby prevents transmission losses at voice frequencies.

*Construction of the Acoustic Valve*

The valve is formed of two plates of aluminum of unequal diameters with a disc of silk clamped between them. There is a hole in the center of the larger plate; and the gas moves laterally through the silk from this hole to the edge of the smaller plate, or from the edge of the smaller plate to the hole, depending on whether an increase or a decrease in barometric pressure caused the movement of the gas.

It is of the greatest importance that dirt and dust are not permitted to enter into the space between the damping plate and the diaphragm; and so, after this portion of the transmitter has been assembled in a place where the air is absolutely free from dust, a piece of silk is fastened over the holes in the damping plate on the side away from the diaphragm. At the same time, the edges of the space back of the diaphragm are carefully sealed with beeswax to make the condenser moisture proof, because moisture would start corrosion of the metal and lower the insulation between the diaphragm and the back plate.

Through a small hole fitted with a plug, the transmitter is filled with nitrogen at normal atmospheric pressure. This inert gas is introduced in place of air for the purpose of preventing oxidation of the sealing compound and corrosion of the metal surfaces within the transmitter.

The combination of compensating diaphragm and acoustic valve is flexible enough to provide for all ordinary changes of atmospheric pressure; but when the transmitter is to be taken to an altitude that is considerably higher or lower than normal,—particularly to elevations above 5000 feet,—a change in the amount of gas in it is

necessary to compensate for the unusual variation in barometric pressure, so that the pressure will be maintained equal on both sides of the metal diaphragm.

*Functioning of the Condenser Transmitter*

The diaphragm and back plate constitute the two plates of a small gas-dielectric condenser that has a capacity in the order of 400 micro-microfarads (picofarads) when the diaphragm is at rest. The back plate is thick and stationary, but the diaphragm is free to move under the influence of the least change in atmospheric pressure against it.

A sound wave in air consists of alternate compressions and rarefactions that travel outward from the source of sound in all directions, taking the form under ideal conditions of a perfect sphere that grows steadily larger in radius as the sound wave advances through space.

This sound-pressure wave causes the flexible diaphragm of the condenser transmitter to move backward and forward (bulge inward and then outward); because during the compression of the air in front of the transmitter, the pressure on the outside of the diaphragm is greater than the pressure exerted against it by the gas within the transmitter case, so the diaphragm bulges inward, and during the rarefaction of the air in front of the diaphragm the internal pressure on the diaphragm is greater, causing it to bulge forward. This results in a variation of the distance between the diaphragm and back plate and a similar variation in the capacity of the condenser, both of which are proportional to the intensity of the sound wave producing the capacity change.

The metal diaphragm and frame of the condenser transmitter are grounded, while the back plate is connected through a very high-resistance leak,  $R$ , as shown in Figure 1, to a high-voltage battery which keeps the condenser in a state of charge. The amount of charging current drawn by the condenser transmitter varies with the variation in the capacity of the condenser formed by the diaphragm and back plate, thus producing a continuously changing  $IR$  drop through the series resistance. This varying voltage drop across the resistance is a relatively faithful copy of the sound-pressure wave causing it.

*Purpose of the Resistance*

If we assume that we are dealing with an ideal condenser having no electrical losses due to leakage through the insulation of the plates, it is apparent that, after the condenser is once charged by the first rush of current into it upon connection of the battery, there is no current flow through the resistance as long as the capacity of the condenser does not change, and so there is  $IR$  drop across the terminals of the resistance.

Any change in the capacity of the condenser (such as when the diaphragm moves under influence of a sound wave), will, however, cause a current to flow through the resistance, thereby setting up an  $IR$  drop across it. It is this variation in potential difference between the terminals of the resistance that constitutes the electrical copy of the sound-pressure wave; and it is this potential difference that is amplified by the condenser transmitter amplifier.

From the foregoing, it is evident that the insulation of this type of transmitter must be extremely high in order that the leakage current will be negligible as compared with the charging current.

The twenty-first chapter of this series will carry on the discussion of the condenser microphone from this point, going into details of the amplifier used with it, the coupling circuit, and some of the practical details of its connection.



# COVERED CAMERA DAYS

By H. LYMAN BROENING

Mr. Heinz may be credited with originating fifty-seven varieties of pickles, but it remained for the pioneers of the motion picture business to devise an equal number of cinematographic cameras, though to date all makes of film are photographed with one standard camera. Of all the varied types of cameras of the days gone by, but one came into favor in later years, and this one was the Bell & Howell, which was developed by the Essanay Company.

Each of the so-called Patents Company producing units had constructed their own camera. There was the cumbersome Biograph camera, a very ponderous contrivance, with air pumps, perforators and all sorts of jim-cracks. When it was set up for action it had the appearance of shooting sideways. The Vitagraph Company had its particular camera, which focused from the front board by means of a slanting tube alongside of the objective lens.

Failure to cap the tube meant certain disaster. Kalem, Selig, Lubin and Essanay each developed a camera and to the latter company may be credited the evolution of the Bell & Howell. In fact, it remained to Messrs. Bell & Howell to bring the mechanical perfection of correct registration up to its present standard. To these gentlemen we owed absolutely steady pictures.

The independent companies were those not members of the Patents Company and consequently not entitled to the benefits of their mechanical patents. The Patents Company owned and controlled about all of the vital necessities towards the shooting of pictures, such as the intermittent movement, loops, perforations and what have you.

As these could not be rented, leased or bought, it created a most unfortunate and embarrassing condition for the independents. These determined and struggling producers, with limited capital, were forced into a sort of motion picture boot-legging business. As the Patents outfit did not extend to Europe, cameras were imported from England and France. The Moy, Williamson, Gaumont, DeBrie, Prevost and Pathe were the popular makes employed.

A few German cameras found their way into the United States, but were off standard as to pictures-per-crank turn and were not generally used. The Patents Company, in their effort to control the entire industry, by reason of their extensive and complete title to patents, were in a continual state of persecution of these struggling independent companies.

During the "reign of terror" the cameraman came in for his share of embarrassing moments and he had to be somewhat of an artful dodger. None of the imported makes of camera could be used in their original state, as the Patents Company officials knew exactly what was inside of every model and a court injunction would soon put a stop to their use, on a statute of infringement. As cameras were the very existence of the "independents" life, only trusted and loyal employees could be permitted to handle a camera. No treasure was more carefully guarded and many cameramen actually took their cameras to bed with them.

The art of camouflage was brought into use and mechanisms were encased in armor-plated boxes with the door carefully padlocked. The camera could be loaded only by the cameraman in a dark room, as the box could not be opened where the prying eyes of some detective might peek into it. A cameraman grew to suspect even his best friend, and many of the actors were doubling as Patents Company detectives. Location trips presented a problem. The film was only two hundred feet in length. When this was shot up it meant a trip back to the studio to reload. Then again there was the ever-present buckling menace to help things along. Outdoor work was, therefore, kept as near the studio doors as possible. What fun!

The trusting cameraman was harrassed on all sides; bribed, threatened with jail and "gum-shooed" by detectives at every crank turn, until artful dodging came foremost and photography was secondary. One fatal peek by the enemy and he had to substitute the camera he was using for some other style or make. Switching cameras became a favorite pastime, three or four different cameras being put into use during a single day's shooting, just to keep the movies on the move.

Most of the boys on the camera were loyal to their employers, but there were instances of "selling out" or turning traitor. Usually this was accomplished by the offer of a better job or for a cash consideration. The writer was made such an offer by a certain company when applying for work in their studio. All that was needed to get the job was to briefly sketch the move-

ment of the camera used by the last boss. A lapse of memory prevented me from getting the job on such a basis.

Other menaces were ever-present to make the cameraman's life miserable, such as static, scratches, bad perforations and poor negative stock. (Eastman film was not available to the independent pioneers.) Many feet of film and much added expense was heaped upon the cost of production in those days, due to mechanical variances and retakes were the order of the day. Patience and perseverance were certainly an attribute in those trying times, but with it all, some very fine examples of photography were turned out.

Each cameraman had his own pet idea on how to overcome the static bugaboo. Some resorted to bicycle lamps under the camera, conveying heat to the inside mechanism. Some relied upon chemical concoctions placed within the camera on saturated sponges. Others insisted that a metal crank handle would do the trick, by grounding the current through the body. But with all these "sure cures" Old John Static continued to play his pranks and many a beautifully photographed scene was completely ruined with these lightning flashes. Some of the camera outfits looked like a Rube Goldberg cartoon, as many of our present cameramen will remember.

Strange as it may seem, history has somewhat repeated itself and the movie camera again finds itself enclosed within a box, but for an entirely different purpose—to keep out stray sounds instead of stray peeks.

The intervention of the government and the untiring efforts of Carl Laemmle and Adolph Zukor eventually broke up the Patent Trust, resulting in a day of freedom for the cameraman to operate unmolested. Bell & Howell created a mechanical Eden and Eastman settled the raw stock difficulties. Whether it be the hand of fate or not, every one of the powerful Patents Company producing units passed out of existence and the famous old trade-marks are just a memory.



## CAMERA & PROP RENTALS

Camera Supply Co.  
1515 Cahuenga Blvd.  
Hollywood, Calif.

Ruddy Geraus, Manager  
GLadstone 2404

Nite Phone GLadstone 6583  
Cable Address — "CAMERAS"

# INTERNATIONAL CLASSIFIED ADVERTISING

Brings results—Rates 45 cents per line—minimum charge one dollar per insertion. For Rent—For Sale—Wanted—For Exchange, etc.

## FOR SALE OR RENT—CAMERAS

**FOR SALE OR RENT**—Mitchell and Bell & Howell silenced cameras, follow focus. Pan lenses, pilot head, corrected new aperture. Akeley, De Brie, Pathe, Universal, Prevost, Willart, De Vry, Eyemo, Sept, Leica. Motors, printers lighting equipment. Also every variety of 16 mm. and still cameras and projectors. B & H Cameras with old type shuttles silenced \$150. Everything photographic bought, sold, rented and repaired. Send for our bargain catalogue. Hollywood Camera Exchange, 1600 Cahuenga Blvd. Phone HO. 3651. Cable, Hocamex.

## FOR SALE—CAMERAS AND EQUIPMENT

**MITCHELL CAMERA**—Like new and guaranteed—silenced Academy aperture, Pan Tachar lenses, free head tripod, 1000 ft. magazines, complete \$2000.00. Hollywood Camera Exchange, 1600 No. Cahuenga Blvd., Hollywood, Calif.

**EDUCATIONAL CAMERA BLIMP** and Dolly for Mitchell Camera follow focus device, geared free head, three wheels, pneumatic tires, cost \$1250.00, special \$500.00. Hollywood Camera Exchange, 1600 Cahuenga Boulevard, Hollywood, Calif. Cable HOCAMEX.

**REAL BARGAINS** in 16 and 35 mm. movie equipment and still cameras. Newest types cameras and projectors in all popular makes. Save money on film, lights, lenses and all essential accessories. Our 36 years of experience stands back of every sale. Before you buy, send for our new bargain booklet. Burke & James, Inc., 223 W. Madison St., Chicago.

**NEW TYPE SUPER PARVO DeBRIE** ultra silent with built-in motor, automatic dissolve, pilot pins, anti-buckling device. Four 1000 foot magazines, DeBrie friction tripod, finder, all accessories. Latest type equipment like new. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**230 DEGREE SHUTTER** Akeley Camera, X134, special focus on film attachment. 2", 4", 6", 12" lenses. Four 200 foot magazines, Akeley tripod, cases. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**SILENCED BELL & HOWELL** with check pawl shuttle 40-50-75 mm. F. 2.7 lenses mounted, two 1000 foot magazines, tripod, finder and sunshade. Rebuilt like new. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**SILENCED BELL & HOWELL** with new Fearless Movement, 40-50-75 mm. F. 2.7 lenses mounted. Two 1000 foot magazines, tripod, finder and sunshade. Perfect condition. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**MITCHELL CAMERA**—Mitchell & B. & H. Magazines; Mitchell Tripods; Cooke Lenses—mounted and unmounted; Duplex Printer; Magazine and Accessory Cases; and other miscellaneous equipment. Ed Estabrook, 430 No. Flores St., Hollywood. OR. 5003.

**BELL & HOWELL** and Eyemo Cameras, Lenses, Magazines, Tripods, Moviolas, Splicers, all kinds of Sound and Laboratory equipment. Eastman and Dupont spliced negative, tested and guaranteed, 2½¢ per foot, on daylight loading rolls, \$2.75. Inquiries invited. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood.

**BELL & HOWELL CAMERA HEAD**, 170 degrees, three lenses, B & H tripod legs and head, beautiful condition, \$750. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

**GENUINE BELL & HOWELL** 1000 foot magazines in excellent condition \$50.00 each. Four hundred foot magazines \$25.00 each. Four hundred foot Mitchell magazines \$25.00 each. Cases for above \$10.00 each. Hollywood Camera Exchange, 1600 Cahuenga Boulevard, Hollywood, Calif. Cable HOCAMEX.

## FOR SALE—SOUND RECORDERS AND EQUIPMENT

**LIKE NEW ARTREEVES** portable double sound recording outfit, with two microphones, Bell & Howell silenced camera, complete in every detail, a real bargain. Price \$3500.00. Recorder without camera, \$2250.00. Hollywood Camera Exchange, 1600 Cahuenga Blvd., Hollywood, California. Cable: HOCAMEX.

**SOUND MOVIOLA MODEL UC**, like new, \$450.00. Moviola Silent Viewing Machine, Model C, with variable speeds, \$125.00. Hollywood Camera Exchange, 1600 Cahuenga Blvd., Hollywood, California.

**ART REEVES**, latest model 1935, double system sound recording installation, factory guaranteed, Automatic Speed Control Motor, Twin Fidelity Optical Unit, Bomb microphone, the only genuine, modern, workable ArtReeves equipment for sale in Hollywood outside factory. Price, complete in every detail, \$2,400. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

**SOUND MOVIOLA MODEL UD**, excellent condition, price \$275. Sound recording system, variable area type with all equipment, price \$425. Boye, 846 Seward St., Hollywood, Calif. HI. 1660.

## FOR SALE—MISCELLANEOUS EQUIPMENT

**COMBINATION TITLE BOARD** and Animation Table, with lathe bed and carriage mounted on bench. Operates in vertical or horizontal position. Can be used for optical printing, special, \$150.00. Hollywood Camera Exchange, 1600 Cahuenga Blvd., Hollywood, California.

**VERY POWERFUL FLOODLIGHTS** of new design. Will burn through a 1000 W. Rifle with Cable—\$5.00. With 12 foot collapsible Stand—\$20.00. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

## CAMERA REPAIRING

**BELL & HOWELL** cameras with old type shuttles silenced, \$150. Hollywood Motion Picture Equipment Co., 645 No. Martel Ave., Hollywood.

## WANTED TO BUY

**WILL PAY CASH FOR:** Bell & Howell, Mitchell, Akeley or DeBrie Cameras, lenses, motors, parts and accessories. Motion Picture Camera Supply, Inc., 723 7th Ave., New York. New York.

**WILL PAY CASH FOR:** Bell & Howell, Mitchell, Akeley or DeBrie Cameras, lenses, motors, parts and accessories. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City, New York.

**MOTION PICTURE**—Still Picture—Laboratory and Cutting Room Equipment—Lenses—Finders—Tripods. Highest prices paid. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood, Calif.

## POSITION WANTED

**DO YOU WANT A CAMERAMAN** who is an expert on studio production; or an expedition cameraman who knows every corner of the world; or a cameraman who thoroughly understands the making of industrial pictures; or an expert newsreel photographer; or an expert color cameraman? A limited number of cameramen, backed by years of experience, are available. Write stating your requirements and we shall be glad to assist you in choosing the kind of cameraman you want. INTERNATIONAL PHOTOGRAPHER, 1605 North Cahuenga Ave., Hollywood.

**PORTER**—Reliable and trustworthy. Three years experience in camera shop. Ambitious and industrious. Best references. Clarence G. Sessions, c/o The Camera Shop, Fort Worth, Texas.

## MISCELLANEOUS

## THE INTERNATIONAL PROJECTIONIST

**THE INTERNATIONAL PROJECTIONIST**, a monthly magazine published in the interests of the projectionist. Interesting, instructive. Yearly subscription U. S. and possessions, \$2; foreign countries, \$2.50. James J. Finn Publishing Corp., 1 West 47th St., New York.

**BUYERS READ** these classified advertisements as you are now doing. If you have something for sale or exchange—advertise it in these columns. THE INTERNATIONAL PHOTOGRAPHER, 1605 No. Cahuenga Ave., Hollywood.

**COMPLETE COURSE IN FLYING**—If interested in aviation, see Roy Klaffki, 1605 North Cahuenga Ave., Hollywood.

**WANTED**—To know of the whereabouts of motion picture relics, documents, or equipment of a historical nature for Museum purposes. Write Earl Theisen, care of International Photographer, 1605 Cahuenga Ave., Hollywood.

**THE NEW YORK PUBLIC LIBRARY**, Office of the Director, New York City, would like to procure the following old issues of INTERNATIONAL PHOTOGRAPHERS—all of 1929; January to October of 1930; and November and December for 1931. It will be appreciated if anyone having these numbers will communicate with us or with R. J. Lingel of the New York Public Library.

# ONLY \$2<sup>00</sup>

Better subscribe for  
The International Photographer

## — NOW —

It will not be long before the  
price is advanced.



# Recent Photograph and Sound Patents

By ROBERT FULWIDER

Registered Patent Attorney  
(Wilshire at La Brea, Los Angeles)

1,999,556—Automatically Regulating the Intensity of a Printing Light. James R. Balslev, assignor to Movie-tonews, Inc., N. Y.

1,999,634—Motion Picture Apparatus. Louis Gross, Lausanne, Switzerland.

1,999,700—Sound Recording Appartaus. Barton Kreuzer, assignor to R. C. A.

1,999,721—Method & Means for Recording Sound. Glenn Dimmick, assignor to R. C. A.

1,999,754—Recording & Projecting Sound on Film App. Raymond Evans, assignor to Arthur Hyde, Sec'y. of Agriculture of U. S. A.

1,999,951—Apparatus for Recording Sound on Film. Stewart C. Whitman, Jackson Heights, N. Y.

2,000,058—Three Color Photography. Joseph Ball, assignor to Technicolor, Inc.

2,000,286—Motion Picture Machine. Albert S. Howell, assignor to Bell & Howell Co., Chicago.

2,000,470—Photography. Max Miller of Los Angeles, Calif.

2,000,575—Safety Shutter for Motion Picture Projectors. Maurice Blank, assignor to Eastman Kodak Co.

2,000,577—Direct View Finder. Joseph Boon, assignor to Eastman Kodak Co.

2,000,587—Photographic Film. Charles Fordyce, assignor to Eastman Kodak Co.

2,000,697—Talking Motion Picture Apparatus. Alfred Goldsmith, assignor to R. C. A.

2,000,698—Motion Picture Apparatus. Clinton Hanna, assignor to Westinghouse Electric & Mfg. Co.

2,000,872—Motion Picture Apparatus. Arthur A. Andrews of Tiptree, England.

2,000,895—Motion Picture Camera. Harry R. Schenck, Jr. of Palisade, N. J.

2,001,005—Method & Means for Recording Sound. A. Whitaker & C. Browne, assignors to Electrical & Mu-

sical Inst. Ltd., Middlesex, England.

2,001,024—Stereoscopic Picture. Milton Idzal of Des Moines, Iowa.

2,001,250—Process of Producing Cinematographic Three and Multi-Color Pictures. Gerd Heymer, assignor to Agfa Ansco Corp., N. Y.

2,001,256—Method & Apparatus for Obtaining Stereoscopic Effects. Emile LeBarbier, Nice, France.

2,001,280—Stereoscopic Motion Picture Film Printing Machine. Karl Marx, Dearborn, Mich.

2,001,322—Multiple Film Handling Device. Bruce Burns & Howard Lewis, assignors to Hughes Industries Co., Ltd., Los Angeles, Calif.

2,001,682 - 2,001,683—Submarine Camera. Fred Jackson, assignor to Warner Bros. Pictures, Inc., New York.

Reissue 19,574—Projection Screen. Theodore Yagle, assignor to Radio Corp. of America.

2,001,884—Film Box or Charger. Arthur Newman, assignor to Pathescope Ltd., London, England.

2,001,951—Photographic Printing Emulsion and Its Production. Wm. Berry, assignor to Ilford Ltd., Ilford, England.

2,002,074—Film Guiding Mechanism. Joseph Bas-son, Brooklyn, N. Y.

2,002,111—System for Synchronizing Sound with Motion Picture. Edmund Hansen, Los Angeles, Calif.

2,002,151—Photographic Printing Apparatus for Endless Sound Film. John A. Maurer, assignor to R. C. A.

2,002,188—Method & Apparatus for Forming Sound Motion Picture Records. Oscar H. Ross, New York, N. Y.

2,002,351 - 2,002,352—Sound Film Apparatus. Freeman H. Owens, New York, N. Y.

Robert Miller, lately chief cinematographer of the S. S. President Hoover, of the Dollar Line, and now in Hawaii, is spending his leisure hours looking for rare Hibiscus plants. He expects to startle the feminine world some day with a new kind of Hibiscus perfume that will make history.

An obscure magazine recently carried a story about a race of super-gorillas living in some fastness of Siberia—another chance for the nature fakirs to put one over.

## MAKING THE MOST OF EXPOSURE

(Continued from Page 19)

give exactly the times marked. There are a few shutters which are close enough so that errors in exposure are not appreciable. In cases, however, where a shutter marked 1/100 actually gives 1/15, the error of almost 700 per cent is entirely out of reason. This error can also be checked against a shutter of known efficiency.

The differences in exposure are not reproduced by exactly proportionate differences in image density. Equal degrees of extremely underexposure and equal degrees of extreme overexposure are represented by smaller differences in density than are similar degrees of difference in exposures in the normal range. Fig. 8 shows this graphically, and by connecting the corners of the exposure columns the form of the familiar H. & D. curve is seen. In considering the imaginary demonstration emulsion with its uniform response, it must be borne in mind that actual practice is somewhat affected by the actual emulsion reacting in the manner shown in this figure.

## FRAGMENTS OF CINE HISTORY

Enrique Vallejo, chief cinematographer of the famous "Ramona" picture produced by W. H. Clune, tells an interesting story of the production of "The Clansman."

Mr. Clune was the original exhibitor of multi-reel motion pictures on the Coast and when he heard of David Wark Griffith's intention to film Thomas Dixon's masterpiece, he manifested great interest in Griffith's work and asked to see it first after completion.

Mr. Clune had just finished the Philharmonic Auditorium and was looking for a big picture to follow "Ramona" when Griffith brought his film to Clune for inspection.

It was in two reels and Clune was greatly disappointed. He told Griffith to go back and make a "big" picture out of it. In three weeks Griffith returned with his "big" "Clansman" in five reels, but Clune, while intrigued because of Griffith's masterly directorship, was not slow to tell Griffith that the story was big enough for several reels more and urged Griffith to try again and get a picture big enough and worthy to follow "Ramona."

And the third time was the charm, for Griffith showed up at Clune's several weeks later with "The Clansman" in ten reels and, when Mr. Clune saw it on the screen, he was amazed and delighted.

"The Clansman" was released in ten reels and after that Griffith could think only in terms of multi-reel pictures.

## Fun In Ye Camera Shoppe Incorporated



The Author

*From the Paul Perry Color Laboratory and Photographic Supply Store at Manila, P. I. Business is Good.*

Business—if any—starts shortly after eight a.m., and on this particular morning I had just opened the store and taken a dollar out of the cash register when the Japanese restaurant man from down the street came rushing in.

"Tents fire, tents fire," he shouted as he came through the door.

I started for the telephone to call the fire department and he dashed over to the section that held the chemicals and removed a can from the shelf.

"How much costing 'tents fire,' please," he asked.

Upon examination, I discovered the can he held contained Intensifier, to be used for intensifying negatives. So—I quoted our best possible price and asked: "Why all the hurry?"

"Oh, I espraining," he answered. "Last night I putting film in developer and not seeing image making appearances. Looking towards photo book, he saying, using tents fire very good for making images appearing. I trying, thank you," and started for the door, almost knocking over an old lady with two "cute" little children and a dog.

"Good morning, madame. What can I do for you," I asked.

"Well, I'll tell you," she said. "I have a camera my grandmother gave me for a birthday present when I was a little girl. I think we were living in Omaha at the time. It used to take the best pictures in the neighborhood and one time I got a prize from the *Youth's Companion* for one of my photos."

"It has a German lens on it," she continued. "It was so good that I did not turn it in, during the war, when the government asked for all lenses. Were you ever in Omaha?"

"No," I replied. "But perhaps you could tell me the name of the company that made the camera."

"There is no name on it," she said, "but it is about this large, and the lens is on the front."

"Naturally," I said, "but if I knew what kind of a camera it was, I might be able to give you the information you wanted."

"I am sure you must know what kind of a camera it is," she continued. "It took such good pictures."

"Well, if you could bring it in I would gladly give you any information I could," I said. "Did you wish to sell or trade it?"

"Oh no," she said. "I wouldn't think of doing that, but the last time I used it (it must have been fifteen years ago) the pictures did not turn out so good and I thought you might be able to tell me what was wrong with the camera."

"Certainly," I replied. "You just bring it in and let me see it. Do you live in the neighborhood?"

"Yes, I do," she answered, "but the camera is still in Omaha."

Just then the dog started barking at the rear of the store. I mean the dog was in the rear of the store barking. I forgot to mention we had a cat. By the time I got there the two "cute" little children, cat and dog were covered

with paint. It took a little while to get them cleaned, but soon they were all on their way. To Omaha, I hoped.

A short time later three gentlemen (I hope) came in. You know the kind—they are always in three different places at the same time—well, the stock does not belong to me, but my boss expects us to sell and objects to having it melt away, so to speak.

The 'phone would ring.

"This is the Terra Belle Studios speaking," said a lady over the wire. "We want 40 lenses right away."

"Yes, ma'm," I said. "Will you give me the focal lengths, speeds, make and for what kind of cameras will they be used?"

"You have me there," she said. "All the requisition says is: forty lens—rush."

"I will have to have additional information before I can fill the order," I explained, "so if you will get it for me I will start getting some of them together for you."

We do quite a bit of rental business to the studios and I thought the order was to be used in a photographic store, that was to be photographed at the Terra Belle Studios. Just as I hung up the receiver, the last of the three men went out the door and I think a camera went with them. We will be able to tell when we take inventory, though.

I had about twenty-five or thirty nice assorted lenses laid out when the phone rang again.

"This is Terra Belle speaking," said a voice. "I have the information for you."

"That's fine," I said, as forty lenses is a nice order and Terra Belle will pay—after nine months. "All right, Terra Belle," I said, "I have pencil and paper ready."

"Here it is," she said. "One 40 millimeter Astro lens. Stop F 2.3 for Mitchel Camera."

"That's all," she said, "and rush it. What is the hourly rental on it, we only want to use it for one scene."

"The daily rate is the minimum charge on lenses," I explained, "and that will be one dollar."

"Just a moment, please," she said. After a few seconds she came back on the phone and said: "Cancel the order; we will not shoot the scene," and hung up.

Terra Belle is right. Still I was glad I didn't have the forty lenses out of the show case and it wouldn't take long to put 30 of them away.

"Ha-ro! Ha-ro," said my friend the restaurant man as he came into the store. "You having lens wit frat feel?"

"Flat feet?" I asked with a smile.

"No," he said. "Frat feel, frat feel. Like feel of vegetables what not having been planted."

"Oh, yes," I said. "I understand. You want a lens with a flat field. Is that right?"

"Yes mam," he said. "Dot right, frat feel. You having?"

"Yes," I answered. "Here is a nice one, hardly used. Did you wish to buy it?"

"No," he replied, "not buying, just asking. Buying package hybow, please."

I gave him a package of hypo took his dime and matched the boss for it, and he lost.

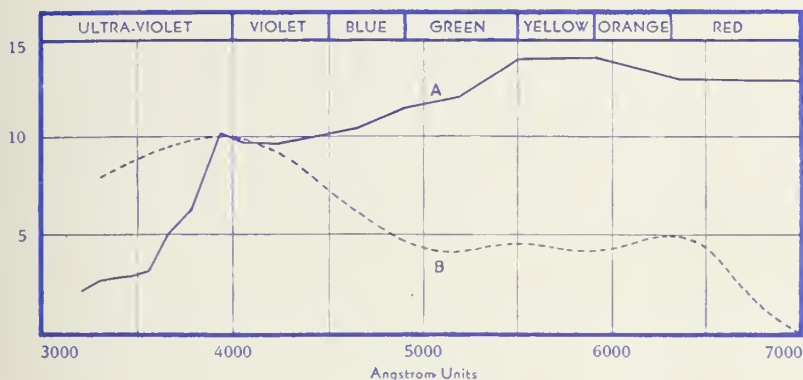
"Good morning," I said, as the rest of the help came through the door. I knew then it was nine o'clock and time for breakfast and as we expected a busy day I needed some nourishment.

So-o-o WHO THAELL SAID I WAS ON A VACATION?



# BALANCE YOUR LIGHT

## AT THE SOURCE



Curve A—Energy Distribution from the new 40 ampere Studio Carbon Arc  
Curve B—Color Sensitivity of Supersensitive Panchromatic Motion Picture Film

**S**TUDIO lighting that is over-strong in yellow, orange and red must be supplied in excess of actual need in order to obtain the required strength of blue and green. The excess colors can be absorbed by filters to obtain balanced color tones on the negative but the excess heat is absorbed by the actors on the stage—much to their discomfort.

### NATIONAL MOTION PICTURE STUDIO CARBONS

PROVIDE STUDIO LIGHTING THAT IS BALANCED TO THE COLOR SENSITIVITY OF MODERN, HIGH SPEED, PHOTOGRAPHIC EMULSIONS

*There is no need for speed-absorbing color filters.*

They project less than one third as much heat onto the stage as other sources of studio illumination operated at the same photographic intensity.



PHOTO-ACTIVE RAYS

HEAT

NEW 40 AMPERE STUDIO CARBON ARC

NEXT MOST EFFECTIVE STUDIO LIGHT



The new studio carbon arc lamps, using National Motion Picture Studio Carbons, are clean, quiet and steady in operation.

**THERE IS NO DETERIORATION WITH AGE  
THERE ARE NO UNTIMELY OUTAGES**

A high percentage of their radiant energy is concentrated within the most effective range of photographic sensitivity. They provide the maximum of COOL photographic light, **BALANCED AT THE SOURCE** for the requirements of the camera.

**MORE SPEED**

**LESS HEAT**

**A BETTER LIGHT  
FOR  
BLACK and WHITE**

**A NECESSITY  
FOR COLOR**

**NATIONAL CARBON COMPANY, INC.**

Carbon Sales Division, Cleveland, Ohio

Unit of Union Carbide  and Carbon Corporation

Branch Sales Offices: New York ♦ Pittsburgh ♦ Chicago ♦ San Francisco



*Give  
this new light  
a trial* ✓

# Mitchell Cameras —

Make all the important pictures  
not only in Hollywood but  
the world over.



## MITCHELL CAMERA CORPORATION

665 N. ROBERTSON BOULEVARD  
WEST HOLLYWOOD, CALIF.

Cable Address "MITCAMCO"

Phone OXford 1051

### AGENCIES

Motion Picture Camera Supply, Inc.,  
New York City, N. Y.

Claud C. Carter,  
Sydney, Australia

John H. Taylor,  
London, N. W. 1, England

D. Nagase & Co., Ltd.,  
Osaka, Japan

Bombay Radio Co., Ltd.,  
Bombay, India

Arminio Conti,  
Rome, Italy



# INTERNATIONAL PHOTOGRAPHER

HOLLYWOOD

FIFTEENTH YEAR

AUGUST, 1935

VOL. 7  
No. 7



Special  
Issue  
Miniature  
Photography

STILL BY MICKEY MARIGOLD

25 CENTS  
A COPY

In the center; left to right—R. Applegate (back to still camera), script; Hal Mohr, director of photography; Claude Hutchinson, chief electrician; Louis De Angeles, assistant cameraman; Bob Surtees, operative cameraman; Max Reinhardt, director; Andy Anderson, operative cameraman; Speed Mitchell, assistant cameraman. The entire cast of twenty-three principals appears in the composite still. (Warner picture—"A Midsummer Night's Dream.")

MOTION PICTURE ARTS AND CRAFTS





Photographed by  
**GEORGE FOLSEY**



Photographed by  
**J. VON STERNBERG**

# SHARING THE • APPLAUSE • WITH DU PONT NEGATIVE



Photographed by  
**HARRY FISCHBECK**



Photographed by  
**KARL STRUSS**



Photographed by  
**RAY JUNE**



REG. U.S. PAT. OFF.

**DU PONT FILM MANUFACTURING CORPORATION**

35 WEST 45TH STREET  
NEW YORK CITY

PLANT . . . PARLIN, N. J.

**SMITH & ALLER LTD.**

6656 . . SANTA MONICA BLVD.  
HOLLYWOOD, CAL.

THE  TRADE MARK HAS NEVER BEEN PLACED ON AN INFERIOR PRODUCT





Knee deep in August among the arboreal marvels of the Big Tree Grove at Wawona, California. The lady in white, holding up the largest tree, is Lupe Velez in her early cinema days, while on guard standing near, is that great old trooper Rin Tin Tin. Mack Elliott shot the still and the trees are still there.

# INTERNATIONAL PHOTOGRAPHER

MOTION PICTURE ARTS AND CRAFTS

Vol. 7 HOLLYWOOD, CALIFORNIA, AUGUST, 1935 No. 7

SILAS EDGAR SNYDER, *Editor-in-Chief*

EARL THEISEN and CHARLES FELSTEAD, *Associate Editors*

LEWIS W. PHYSIOC, FRED WESTERBERG, *Technical Editors*

HELEN BOYCE, *Business Manager*

A Monthly Publication Dedicated to the Advancement of Cinematography in All Its Branches; Professional and Amateur; Photography; Laboratory and Processing, Film Editing, Sound Recording, Projection, Pictorialists.

## CONTENTS

Front Cover Still by Mickey Marigold

FRONTISPIECE by Mack Elliott	- - - - -	1
JUST ANOTHER COLOR PROCESS	- - - - -	3
<i>By Milton M. Moore</i>		
REAL ACTION FOR YOUR CAMERA	- - - - -	4
<i>By Karl A. Barleben, Jr., F.R.P.S.</i>		
A DAY AT HOME WITH THE MINIATURE CAMERA	- - - - -	5
<i>By Nina Brownrigg</i>		
IN REVIEW	- - - - -	6
<i>By Paul Gene Bowles</i>		
"THIRTY DOLLARS" LONGWORTH	- - - - -	7
<i>By Leonard Neubauer</i>		
THE NOBLE SPORT OF LEICASHOOTING	- - - - -	8
<i>By Hansena Frederickson</i>		
THE YOUNG CHILD AND THE MOTION PICTURE	- - - - -	9
<i>By Ann Harris</i>		
MINIATURE CAMERA PHOTOGRAPHY	- - - - -	10
<i>By Augustus Wolfman</i>		
IN MEMORIUM—CHARLES STUMAR	- - - - -	12
RECENT PHOTOGRAPH AND SOUND PATENTS	- - - - -	12
<i>By Robert Fulwider</i>		
TELEVISION	- - - - -	13
<i>By Harry Lubcke</i>		
SUPER SPEED MOTION PICTURES	- - - - -	14
<i>By Horatio W. Lamson</i>		
NIGHT SHOOTING WITH THE MINIATURE	- - - - -	16 and 17
<i>By Karl A. Barleben, Jr., F.R.P.S.</i>		
ENGLISH AND METRIC LENS FOCUS TABLES	- - - - -	18 to 23
<i>By Paul R. Harmer</i>		
THE FACTS ABOUT BLOCK BOOKING	- - - - -	24
<i>By Earl Theisen</i>		
THE CINEMATOGRAPHER'S BOOK OF TABLES	- - - - -	27 and 28
CLASSIFIED	- - - - -	30

Entered as second class matter Sept. 30, 1930, at the Post Office at Los Angeles, California, under the act of March 3, 1879.

Copyright 1935 by Local 659, I. A. T. S. E. and M. P. M. O. of the United States and Canada

Office of publication, 1605 North Cahuenga Avenue, Hollywood, California  
GLadstone 3235

James J. Finn, 1 West 47th St., New York, Eastern Representative  
McGill's, 179 and 218 Elizabeth St., Melbourne, Australian and New Zealand agents.  
Subscription Rates—United States and Canada, \$2 a year. Single copies, 25 cents.

This Magazine represents the entire personnel of photographers now engaged in professional production of motion pictures in the United States and Canada. Thus THE INTERNATIONAL PHOTOGRAPHER becomes the voice of the Entire Craft, covering a field that reaches from coast to coast across North America.

Printed in the U. S. A. at Hollywood, California



## FOR SEPTEMBER

All our old time favorite writers will be with us in our September issue. You can't afford to miss 'em.

It won't be long now before the International Photographer subscription price is advanced. Only \$2.00 now.

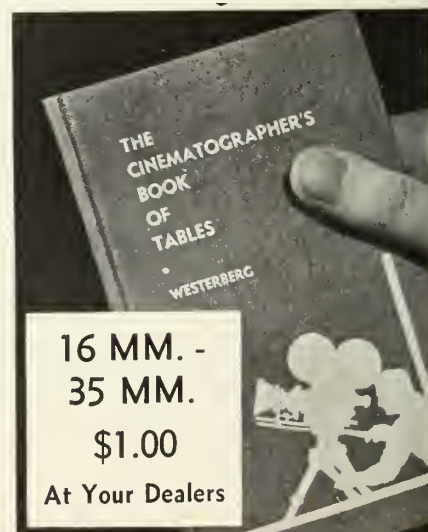
Fred Westerberg's "Cinematographer's Book of Tables" is positively the best buy of its kind in motion picture aid books.

The whole cinematic world is demanding Lewis W. Physioc's new book, "From Script To Screen." There'll be something more about it in September.

September International Photographer will carry articles on Professional and Amateur Cinematography, Film Editing, Sound Recording, Processing, Color in the Laboratory, Miniature Photography, Light, Miniature Sets and other attractive features. Don't miss these entertaining and helpful articles.

Subscribe Now!  
**\$200**

for a year's subscription to the  
**INTERNATIONAL  
PHOTOGRAPHER**





# Just Another Color Process?

By MILTON M. MOORE

**L**ONG ago, when the movies were new in Hollywood (so the story goes) a young writer journeyed from the east to the land of the Cahuen-gas. He came with a great idea which was not only an idea but a working continuity of the idea, which the young man believed would furnish the plot for the world's greatest movie.

In due course, the young man and the script were ushered into the presence of the Producer. The writer enthusiastically described his art and, with a dramatic gesture, laid the script on the Producer's desk.

The Producer (so the story goes) coldly surveyed the young man, nonchalantly brushed the script aside, leaned back in his chair, took a couple of good drags on the Perfecto and said: "So, young man, you come in here with an idea with a script wrapped around it and try to sell me something. You try to sell *me* a script. Well, young man, let me tell you, I already got one!"

The color situation in Hollywood today is somewhat comparable—Hollywood has a color process.

This is as it should be. Technicolor has spent a tremendous amount of energy and money in bringing color to the screen. That organization has done more to advance the color art in motion pictures than has any other similar organization. By their success color has been popularized and the public interest stimulated.

The race is to the swift.

Much ballyhoo, in the form of publicity for new color processes, has come out of Hollywood. Exaggerated claims have not developed much of great value and so many "perfected" processes have failed to deliver that new methods are referred to as "Technicolor and the other fellows."

While public interest in and demand for color quickens the producer's interest in new developments lessens. He has been fooled too often. He has a color process available, which brings no technical processing grief to his laboratory. He can pay for it and it is good.

All of which explains why those who have developed the process about to be discussed have kept away from the studios and have avoided making any claims publicly.

Having spent some twenty years behind a moving picture camera, we did not realize that there was any other business of importance, where real money was available for improved methods. Much to our surprise and delight we discovered for the first time a vast new world of industry beyond the walls of moviedom.

Our color process has stood the acid test in the commercial world. It is being used by hard boiled men of business simply because they can make money out of it.

The process is simplicity itself. All of the color range is produced from two negatives which are made by the bi-pack method. It is a subtractive method, the front negative being of a special type and characteristic not ordinarily employed in this method; the rear negative is standard pan-chromatic.

Any ordinary still camera using cut film may be em-

ployed; any movie camera fitted with a bi-pack color plate may be used.

We have made exposures with a roll film type camera simply by rolling the two negatives together.

No lens filters are needed. No more illumination is required than for black and white, excepting that, as in all color photography, interiors must be illuminated by sources having full color range emanations.

Exposure latitude is the same as black and white—the better the negative the better the color.

The writer is at present using a 5x7 Graflex and making speed at .550 of a second with a lens aperture of F:4.5.

Close-up still life is photographed with the same outfit at .15 of a second at F:11.

Negatives are always developed to a normal black and white gamma in a developer giving a long tone gradation scale and fine grain. No excessive contrast is necessary.

Positives are always of normal gamma, brilliant, with excellent gradation, tone, detail and drawing. The most subtle shades of monochrome color values are retained.

The process is essentially a chemical development, embracing some new elements in photo processing. These formulae, for various reasons, are not made public.

In the case of motion pictures, prints are made on Eastman's duplicating stock and processed in machines. Not being at the present time in the motion picture business, we have not produced any pictures by this method. Processing machines for 16 mm. subjects will be available in the near future.

Our present efforts are directed toward natural color photography in the field of lithographing, illustrating and advertising, the making of transparencies and lantern slides for educational purposes and color reproductions.

When and if we enter the motion picture field we will be in a position to deliver all the colors at a price which will be something new and startling in Hollywood.

The process, being based on proper photographic monochrome color values, is heir to the inherent photographic variables. Color processing adds to these difficulties only to the degree of stability of the processing solutions, which have about the stability and life of the average developer.

Blue, green, yellow, orange and red in various shades are easily and faithfully reproduced. The delicate compound colors in the lighter shades are more difficult. This is especially true of lavender and purple, which result from almost perfect negatives and positives and careful color processing.

No attempts have been made to finance a large scale enterprise. We prefer to expand slowly, building as we go by means of capital earned.

We are not in the experimental stages of development. Our problems now are the same as those which any new business must encounter—costs, sales, profits; and — —

Business is good—thank you!

# Real Action For Miniature Camera

By KARL A. BARLEBEN, JR., F.R.P.S.

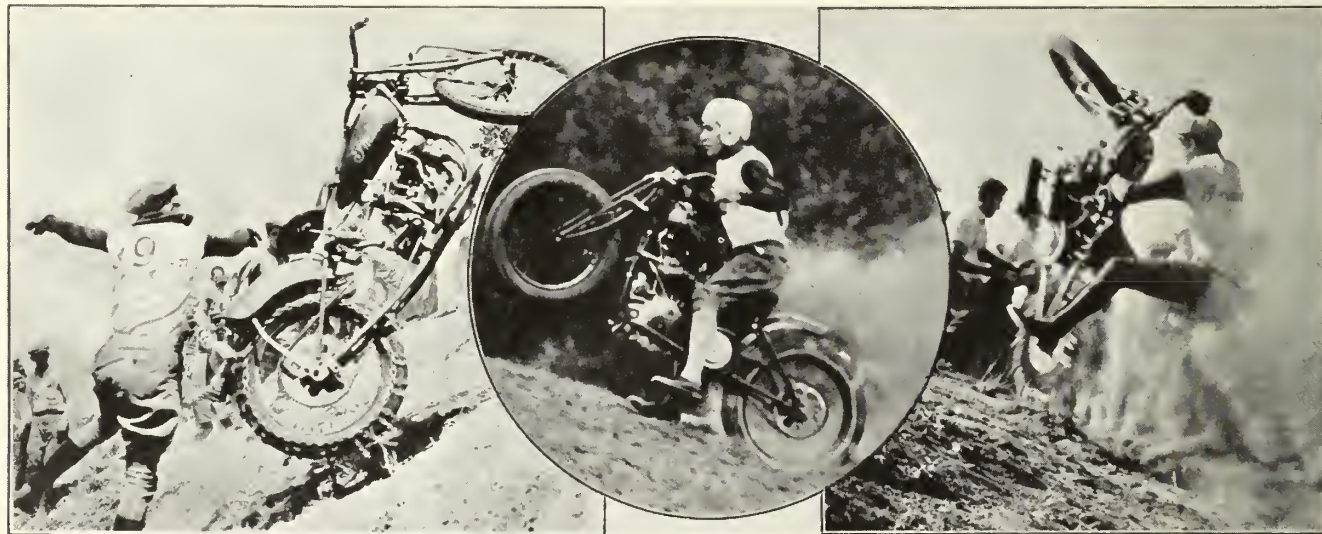


WITH the increased interest in bicycles and motorcycles as a medium of sport, it is but natural that the amateur photographer interested in real speed and action should turn his lens in the direction of the many activities which these two-wheeled vehicles afford. For some unknown reason, these machines have in the past struggled along with only a comparatively few adherents. This condition, it is encouraging to note, is rapidly changing. Bicycles and motorcycles are once again coming into their own. Folks are beginning to realize that they can straddle a saddle with comfort, ease, safety, and economy. They have found that the two-wheeled steeds offer just as good sport as horseback riding.

The amateur photographer who also enjoys bicycling or motorcycling has within his reach some of the most fascinating picture-material anyone could hope for. He is in the unique position of partaking of, and photographing, one of the finest sports in the world. Bicycle races and paced races have throughout the years held the fancy and interest of thousands of adherents. The cameraist interested in these activities is naturally going to photograph such events to the best of his ability, but unfortunately it is rare that he succeeds in getting anything

terrific speed, require a fine camera technique in order to be satisfactorily captured.

Motorcycle polo, while comparatively unknown to the general public so far, is a sport which is rapidly gaining new friends. It does not differ greatly from regular polo, and the fact that steel horses instead of flesh-and-blood horses are used, makes the game extremely fascinating. If you have never seen such a game, consider for a moment what it means to see eight or ten men, each mounted upon a motorcycle weighing from 300 to 450 pounds, chasing about the field in a wild scramble in an attempt to "boot" the ball into the enemy's territory. Here is a flashing dashing game of skill and nerve, a game for sturdy and rugged souls. At first thought one would think it highly dangerous, yet remarkably few accidents occur. There are, however, many spills, harmless and highly amusing, and most excellent material for the camera, as can be well imagined. The reason nothing more than possibly a scraped shin or elbow results is because the speed of the machines is rather slow. In short, while the game offers thrills galore, both the spectators and photographers, to say nothing of the participants, can enjoy it without that awful fear of danger-to-be which is usually ex-



Right—No Western rodeo can beat a motorcycle hill-climb when it comes to bucking broncos. Left—You just can't stay with some of these popping ponies at hill-climbs. Center—Up she goes—nose in the air, rear wheel spinning, it's a question whether this chap will make the grade at a motorcycle hill-climb. Photos courtesy Indian Motorcycle Co.

worth while on his film. A few suggestions, which will follow shortly, should enable everyone to get pictures of such subjects of which he can be proud.

When it comes to motorcycles, there is really no limit as to the subject material for the amateur whose camera shutter can go up to 1/1000th of a second exposure. Aside from mere personal trips, either solo or with a group of friends, there are gypsy tours, midnight runs, turkey runs, hill-climbs, races, motorcycle polo, "murdercycle" or "cameraman polo," and other thrill-producing activities. The tours and runs are usually run off in groups varying from ten to several hundred motorcyclists. The run may be scheduled to cover one, two, or three hundred miles. Various pleasures and sports may be planned at the farthest point, such as swimming, tennis, picnicking, and the like. It goes without saying that the motorcyclist who is also a photographer will not fail to record the hundreds of pleasurable incidents, scenes, and activities on such occasions.

Hill-climbs and races are purely for the speed-minded cameraist. These demand the fastest lenses and shutter speeds, but what a thrill it is to produce on the film clean-cut, sparkling, sharp negatives of such activities. The subjects, traveling at

perienced at automobile races and the like, where the chances are someone is going to "get it" before the event is finished.

"Murdercycle" or "cave-man polo" is one of those things which offers thrills and spills. It lacks many of the elements of motorcycle polo, yet has its adherents among the younger sets. The game is played as follows: Each rider fastens a toy balloon to his cap or helmet by means of a piece of string. They work out into the field, each armed with a newspaper rolled into a tight, club-like bat. The object is to smack all the balloons you can with the paper bat, breaking them. The man whose balloon breaks, automatically drops out of the game. The rider whose balloon remains intact longest is the winner. No energetic imagination is required to visualize the possibilities of this game for the action camera. Nor would you want to use your brand new motorcycle in such a game. There is, though, fun and thrills for all in such activities.

As for hill-climbs and races—well, these are fairly well-known to the public, having been often featured in newsreels, newspapers and magazines, from time to time. Here we have a serious, intense sport in both cases. Both offer certain dan-

(Turn to Page 23)



# A Day At Home With My Miniature Camera

By NINA BROWNRIGG



Upper left—Clowning at the bar. Upper right—The Bridge Game. Lower center—Pals. Upper center—Japanese Silkies. Lower left—"Hands Up!" Lower right—Father and the parrot. Leicaphotos by Nina Brownrigg.

**O**UR miniature cameras are indispensable parts of our travel equipment. We take them with us wherever we go, be it for a day, a month or a year. With pride we show our friends our vacation pictures, or the pictures we took at the theatre the other evening. Rarely do we find much to photograph in and around our homes except upon very special occasions, or when the camera is new. Since the things which surround us in our daily lives are generally most treasured by us, why is it that we do not photograph them more often? Many, many pictures, if we had only snapped them, would be of interest now, if only to the family. On a rainy day, what fun it is to gather together all the old photograph albums of years past and to pore over the pictures in them, only wishing that many of them had been better, showed more detail, or had not faded!

The miniature camera exactly fits the need of the person who likes to keep a full record of the many activities of his family from day to day and year to year. Its very versatility in getting all of those difficult and interesting shots away from home makes the miniature camera an ideal camera for home use. We can quickly whip it into action under many conditions which would be impossible with a camera of another type. Also with a miniature camera, we are certain of being supplied with enough film to catch those unusual pictures. We can try and try again for that special picture, for we know that we have from thirty to forty pictures on a single roll of film. This helps tremendously when Baby or Bozo refuse to get just that position or look as we press the button. Children and dogs usually move fast, and so with our fast shutter speeds, we are certain of the picture, that is, if they are not past us before we click. Then we try again.

As a rule, we home cameramen and women devote ourselves almost exclusively to out-of-door photography. We photograph our gardens and the exteriors of our houses. And we bring our friends outside in order to take their pictures. It is a good idea to master out-of-door photography first of all, but we are missing a great deal of fun if we so confine ourselves.

There is a great thrill and fascination in getting interior shots. With a miniature camera and fast lens these interior pictures should be as easy as the exterior ones. However, one can enjoy taking interior pictures, and instantaneous exposures at that, without a speed lens. My Leica is equipped with an  $f:3.5$  lens, and I have found that by boosting up the light inside the house, exposures of one-sixtieth and one-fortieth of a second at  $f:4.5$  or  $f:6.3$  are not difficult. They only require the extra light given by two of the large new Photofloods in reflectors. The lights must be as near as possible to the subject in order to lessen the exposure time.

If one does wish to use Photofloods, it is quite possible to get good interior pictures by the light from windows or with the aid of ordinary 60-watt lamps. The exposures will then range from about one-fifth of a second to three or four seconds at  $f:3.5$ , depending of course upon the amount of light and kind of film you are using.

I have found it possible to get "candid" photographs with a half to one second exposure. In attempting these, you deposit your camera on its tripod at the outskirts of a socially chatting circle and pretend that you do not even dream of such a thing as taking a picture. Meanwhile, be sure that you have obtained a focus on your victim and that he has a little latitude in the view finder. Talk to your nearest neighbor with an eagle eye on your man

(Turn to Page 27)



# IN REVIEW

With Little Bits from FAR Lands and NEAR.

By PAUL GENE BOWLES

**ESCAPE ME NEVER**—In the history of excellent continental productions, Paul Czinner and Elizabeth Bergner are personalities of great significance. Producing jointly for "The Elizabeth Bergner Poetic Film Company," "these two startled the cinematic world in 1924 with their first picture—the now famous "Nju." Famous now, too, are the co-stars of this and other pictures of the group, Emil Jannings and Conrad Veidt. Carl Freund later came into their ranks to make a thing of lyrical beauty in photographing "Donna Juanna," a gem in Spanish setting. I wonder if Freund, now in Hollywood, doesn't get a kick out of it when his memory and his rotound self join the audience at The Four Star to see Bergner, once again under the direction of Czinner, play "ESCAPE ME NEVER."

There is evidence of the same old ambition to create the finest film artistry, the same poetry mixed with realism markedly present in this picture. Their artistry is not an attempt to be obviously *different*, but rather the artistry that comes through mastery, finish, undersanding. Bergner is eleven years greater than her "Nju," which was raved about. She is a superb actress who loves the screen and knows how to externalize her thoughts for the camera; while Czinner, drawing a fine bead on his intentions, strikes at the heart of each directorial problem. He has preserved the airiness of two Bohemian lives, yet inter-shot it with strife and tragedy so human that it has made one of the most convincing stories I've ever seen. At the same time he has kept his characters well motivated and utterly natural.

While realism is the keynote of this picture it is pervaded with a poetic air that fascinates. The charming opening scenes in Florence, the hike across the Alps, Gemat's tragic discovery of Sebastine's infidelity, the death of the bambino—all are imbued with an inspired touch that absorbs you, but is indescribable.

Bergner is a wonder and Czinner cleverly suordinates cutting and purely directorial technic to the acting of the star. In the close ups of Bergner you come face to face with her mind. She makes magic use of her emotions and takes you beyond yourself, 1935, America; beyond life and into a new sphere. You have a treat in store in watching her play the street gamin, an impish child with a profound womanly feeling from whom life has taken much, yet given the key to beauty of life and the joy of living.

Of special importance to those really interested in film technique is the announcement of *midnight matinees* each *Saturday* at the Grand International Theatre. Exhibited at this time will be films, many of which Time has acclaimed the "Classics" of foreign production.

"Poil de Carrottee," "The Constant Nymph"—sister picture to the fine "Escape Me Never"—"Le Million," "China Express," "The Cabinet of Dr. Caligari," the great psychological masterpiece played by Conrad Veidt and directed by Robert Wiene, are to be shown. Forecast for the future are the famed "Potemkin" and "Mother," along with other Soviet productions.

July the twenty-seventh brings **THE MURDERS KARAMAZOV**, a German adaptation of Dostoievsky's "The Brothers Karamazov." I saw this film three or four years ago, but nothing can dim the memory of its powerful scenes and well thought out montages. This is, I think, one of the three outstanding films of the past decade.

Fedor Ozep, a product of the Russian school (Soviet), went to Germany to do this story with Anna Sten and Fritz Kortner in the lead roles. Montage and the theory of thematic development, i.e. insistence on a psychological idea as the structural foundation of a whole picture or its various sequences—have never been so successfully incorporated into a commercial film. Ozep is a genius with a solid background in the "New Cinema"; he knows his A B C's of film structure and feels keenly the power of his medium.

In **KARAMAZOV** one is conscious that cinematic technic plays a great part in telling the tale. Contrasting this work with the Bergner picture one realizes that the actor is somewhat subordinated to the camera, which seeks out a story in the setting and life around them. Thus, a steaming locomotive—so skillfully portrayed in a study in semi close-ups by Ozep—becomes a symbol of power to, in contrast, show the meekness of Katherina, so inert in the presence of the throbbing giant. And it is Katherina who must vie with worldly Gruschenka for the love of Dimitri (who is so much like the locomotive, waiting for some force to release its potent power)! Cognac swallowed at a draught, a fastidious bureau shot from above; a silk covered bed turned down suggest, almost aside from the character, the licentious old libertine, father of Dimitri, as he anxiously awaits Gruschenka. The massive, bolted door to his house is pointed up to intimate the avarice of the father, spending for lust the legacy of his sons. A direct cut to a cat during the time Dimitri is arguing with Gruschenka about her inciting the father to spend the money he (Dimitri) should have to marry Katherina, deftly conveys the idea the director would have you feel about Gruschenka.

Following the argument Gruschenka seduces Dimitri—and in a way that will show you that Anna Sten is a greater actress than many of her American pictures would have led you to believe. Hours later he is let out into the morning air. Puzzled—shocked, he sees the dawn break on dew covered buds, sees the country side awake. He lets the water from the wet roof douse his face and cleans and scrubs as though to wash away the memory of the night. Yet the birds sing a new song, the trees bear a new foliage—the whole world is new. He is in love!

The cinematic unfoldment of the "Dawning Day" is done with rare taste. You will never forget its slow rhythm and photographic beauty.

CINEX TESTING MACHINES

CINEX POLISHING MACHINES

**BARSAM-TOLLAR MECHANICAL WKS.**

7239 Santa Monica Blvd.

Phone GRanite 9707

Hollywood, California



# "Thirty Dollars" Longworth



HEY call him "Pappy," "Thirty Dollars" and plenty of other things. No matter what they call him, Bert "Buddy" Longworth, one of the veteran still men of Hollywood, always manages to shoot some of the most unique and striking stills to come out of the studios.

In the motion picture business since 1921, Longworth was one of the first to create different angles and show originality in the making of publicity stills and portraits. Connected with Warner Brothers studio since 1929, he is still coming through with new ideas and craftsmanship that keeps him among the leaders of his field.

Lights, more than anything else, are the secret of making successful pictures in his opinion. All the mechanics of lenses and timing are secondary.

"Only by the correct usage of lights can photography be raised to the standard of a fine art," he says.

Longworth entered the field of photography in 1910 when he opened a portrait gallery in Detroit. Among those he photographed was Henry Ford. Soon afterward he established the first post card photo service in America. The pictures, which sold at three for a quarter, were made in ten minutes.

Going into another avenue, he became a news cameraman for the Chicago Tribune and covered some of the biggest news-breaks of the time, including the famous Eastland disaster.

His first job in motion picture work was with Universal in 1921. Among the pictures he shot the stills on were, "The Hunchback of Notre Dame," and "The Phantom of the Opera."

After three years, he transferred to M. G. M. Studio where he was the first man to take portraits of Greta Garbo and covered her two early hits, "Flesh and the Devil" and "The Temptress."

In 1929 he went to Warner Brothers' studio where he has been ever since. He specializes now in poster art, publicity stills and unusual composites.

His famous expression, "Thirty Dollars," dates from the dear departed days of the bull market of '29. He was working on

By LEONARD  
NEUBAUER



the Paramount lot at the time and everybody from office boys and stenographers to stars were dabbling in the market.

One particular stock in which everyone was interested remained stagnant at thirty dollars for several weeks. Longworth was appointed unofficial emissary to the electricians on top who could not get news since they were marooned near the ceiling of the stage most of the day. Each day, his doleful announcement "Thirty Dollars!" in shouting the stock's lack of progress was greeted with groans.

Since that time the name stuck. Now he uses the expression as a standard of comparison for his work. Anything that is mildly good rates "Thirty Dollars" after it is taken. Something sensational calls for "Forty Dollars" while the fifty mark is reached only rarely. When he moans, "Twenty Dollars," well—that's something else again.

Nephew of the famous Nicholas Longworth, late Speaker of the House of Representatives, he has photographed all the presidents from Roosevelt to Roosevelt, most of the movie stars in Hollywood, and celebrities from coast to coast. Although he has shot upwards of half a million pictures in his career, he still retains the same zest in his job as the day he started.

Never stationary, Mr. Longworth is always experimenting with something new. At the moment he is attempting to take portraits in almost total darkness.

And if pictures can be shot in total darkness, Buddy Longworth will shoot 'em.

## "TITLE-CRAFT JUNIOR"

It is announced by Bell & Howell Company that a new line of Title-Craft titles is available for movie makers—new, improved typewritten titles with a minimum price considerably below that of Title-Craft's widely-known hand-set printers' type series. These new low priced titles are called "Title-Craft Junior" and are particularly attractive and legible.

They have the following distinct advantages: A choice of many beautiful and appropriate all-over backgrounds at the same price as for backgrounds; careful arrangement of type

matter for artistic appearance and legibility; many pictorial backgrounds available at only ten cents more than the minimum price; fine technical quality in filming.

Specimen "Junior" titles or a complete set of the many available backgrounds may be seen at most photographic dealers'; also a demonstration film composed of eight or ten titles. The hand-set Title-Craft titles have been extremely popular, and this new series will undoubtedly meet with equal favor in the lower price field.

The wild ride to the Gypsy Tavern is one of the most masterfully handled scenes in cinema history. The way the idea of MURDER is put across and its consummation in the act of killing the old father, is one of the best examples of developing a sequence by insistence on a thematic idea that I know of.

See this picture, now or any time you get the chance. I mentioned that I had three favorites for this decade. KARAMAZOV was one of them, and now a second comes up to be run on the seventeenth of August—TABU. This will be shown following THREE SONGS ABOUT LONDON, shown on August third, and ZWEI MENSCHEN, a film starring Gustav Frohlich, famed for his playing of Rotwang in "Metropolis," shown on August tenth. TABU is the loveliest of all South Seas pictures. Murnau, its director, was most alert in this place he liked best, and under the influence of his sentiment, poured his greatest genius into the work.

The subscription price of THE INTERNATIONAL PHOTOGRAPHER is \$2.00 per year. Subscribe now if you want to get in on this reduced rate.

## De BRIE at SACRIFICE!!

New Type SUPER PARVO DEBRIE  
Ultra Silent Camera

Has built-in motor, automatic dissolve, pilot pins and anti-buckling device. Four 1000 ft. magazines—40 mm., 50 mm., and 75 mm. lenses—Debie friction tripod and new type Debie finder. Leather covered carrying trunk and tripod cover. It's the latest type equipment—like new!

MOTION PICTURE CAMERA SUPPLY, Inc.  
723 Seventh Avenue New York City  
Cable: "Cinecamera"





# The Noble Sport of Leicashooting

By  
**Hansena  
Frederickson**

One doesn't have to wander miles afield to find beautiful, suitable or interesting subjects for his camera. Pictures exist on a busy street, in back yards, in buildings—human interest, pattern studies, pictorial shots are prevalent if we could but see them.

In a conversation with a fellow "LEICASHOOTER" the other day, the subject of where to find pictures came up. He said that he had shot 4500 pictures in Europe and couldn't find anything to take at home. I argued that in any clime, at any time there were more pictures to be made than artists to shoot them.

He still doubted me, so to prove my point I tried an experiment. I slung my Leica and Weston Meter around my neck, took a sunshade and a couple of filters, a roll of Super X and a roll of Fino Pan film, and started out. I walked from the University of California at Westwood to Hollywood, a matter of 7½ miles.

I spent three hours leisurely strolling this distance and took 72 shots, each one of some kind of interest, either as a candid camera shot, an architectural study, or a beauti-

doubter, he was convinced that there are pictures everywhere, if he would only open his eyes to them.

Of course, for such a trek as I took, a Minicam is a necessity, since it would be far from pleasant, for instance, to cart a tripod, a graflex, and 72 plates for three hours of rather warm walking. I'm afraid that the fun and pleasure would cease after the first few minutes. With the Leica around one's neck and 72 inexpensive shots within snapping distance, the walking remains fun and one is ready for adventure. My camera attracted no notice, and I could picture people as well as things.

Of course, I saw with the Leica eyes, which impressed everything on my mind and the little three hour walk became an important event to be long remembered. When one sees with the eyes of the camera, his appreciation of events, places, scenes and people increases accordingly. On my walk I found trees and lawns; tall, slim Eucalyptus trees; squat, full peppers; bushy, sky-reaching palms; rose beds patterned against the sky; huge leaves making patterns against each other; two small boys watching a lily pond; three especially cute, small Scotties and a little girl admiring them; a fountain dripping against the sun; a long lane of Deodars; a swarthy little Mexican boy in a huge, white hat and old, run-down shoes; a group of flower pots on a window sill; an apartment group that looked like a bit of Normandy; a flower stand, with the sun streaming through an awning; a steam shovel belching smoke into the clouds; a lad asleep on a park bench. My knowledge of what exists between my work and my home is now more complete.



ful picture. I even shot through store windows, if there was something of interest in them.

Of course, they were not all salon prints, but they DID have something to say and one shot won third place in a miniature camera club exhibit, the tree print reproduced here. When I showed the rolls to my friend, the

The camera can teach us to take events as they come. If, instead of sighing for a ticket to the Orient, or Russia, or the South Seas, we could see what there is in our own backyards, we would be far happier and much better and more productive photographers. There are really too many pictures in one's own small world to fill a lifetime.



# The Young Child and The Motion Picture

By ANN HARRIS

*Third Grade Teacher, Second Street School,  
Los Angeles*

Pioneers in the field of motion picture appreciation are apt to dismiss the young child by saying that he has no place in the motion picture theater. Be that as it may every Sunday, in our district, finds him there. The father is not able to provide him room to play—either inside or outside, but he can often provide a dime with which to send him to the Sunday show.

What is to be done about it? First, one can lead him to an awareness of the other sources of enjoyment within his environment such as the newspaper, the radio, the library, and the park.

Then he can be lead to exercise discrimination about the photo-plays that he does see. At first, he will be hazy as to the title, the star, and the continuity of the cinema he has attended. Gradually he realizes that blindly paying a dime into the box office and taking what comes—is as intelligent as asking for a dime's worth of candy and taking anything, when he knows very well that some kinds are better than others.

Monday morning reviews of the Sunday shows had continued all last term until, on the twenty-first of February, we were fortunate enough to have the opportunity of viewing three comedies. Six reels of comedy for everyone gave us our first real chance to do something with motion picture appreciation. Usually, since not more than five saw the same picture, discussion was very difficult.

If you could only have heard the laughter of those children. Not a move did Charlie Chaplin make, but the children caught it, understood, and laughed. Here in pantomime they found a common background of meanings sadly lacking in a group of eight, nine, and ten year olds composed of 1 American, 12 Mexicans, 2 Japanese, 6 Jews, 2 Armenians, 4 Russians, 1 Irish, and 8 Syrian.

Laughter is as foreign to the daily lives of these children as they themselves are—to you. Current events bring out incidents such as the following: From Armenian Ben, age 10, "That was my uncle that jumped off the bridge yesterday. He hadn't been long from Armenia. Someone stole his truck. He couldn't work."

From Russian Tanya, age 8: "A Russian man killed his wife and her friend on the way to work this morning. Right down there—we saw them. They were dead."

When tragedy walks by one's side, when one has not enough to eat or wear,—one must laugh—if one is to live.

So it was that this was a gala day in our lives. After each child had written up the comedy that he had enjoyed the most,—he share his story with the group—seated around the tables. As each child read, we laughed together again in remembrance. A tally was kept as the stories were read. At the end, the score stood: Our Gang, 9; Charlie Chaplin, 12; and Harold Lloyd, 5.

Now came the question as to what made a comedy good. "A good comedy must be funny, but not silly," averred Marjorie, age 8.

In explaining the difference between silly and funny—Armenian Charles asserted: "Silly is something they just make up. Funny is something that is real, and they act it funny."

The championing of favorites began with Alvin: "Harold Lloyd is the best because he does good acts. When he slips, he slips good."

## FELSTEAD GOES ON ACTIVE DUTY



Lieutenant Charles Felstead, who is our Associate Editor in charge of sound recording and reproduction, has again been ordered on a tour of active duty with the Army. Lieutenant Felstead will be stationed with the 63rd Coast Artillery (Anti-Aircraft) Regiment at Ft. MacArthur, San Pedro, from July 11th to 24th. With other officers of his own regiment—the 977th Coast Artillery (AA)—he will assist in the instruction of the CMTC Cadets and of the candidate officers. Anti-aircraft machine gunnery and chemical warfare will be his special subjects of instruction, as well as Army communications.

"Charlie Chaplin didn't have to have as many subtitles as Harold Lloyd, because Charlie Chaplin can show better what he means without subtitles." Rivah, age 8.

"Speaking of subtitles," interrupted Shirley, "wasn't Harold Lloyd a talkie?" Then as the children laughed, she insisted, "Well, of course, Our Gang was—a talkie." That child hadn't missed sound at all.

Then Armenian Charles summarized Charlie Chaplin's credo: "Charlie Chaplin can explain things silently."

"Our Gang is best for children though," insisted Mexican Martha, "because it has so many children in it."

"It isn't good for children because they want to do what they see. They shouldn't have taken up that sign," began Lorraine, age 8, and before she could finish,—there came a flood of condemnation of the Gang for the things they had done—that they shouldn't have done.

"When you see one or two good children in a movie, it makes you want to be good," summarized Rivah. "The Gang doesn't make you want to be good—it makes you want to be mischievous."

"Let's all go to the same movie this week-end," suggested Rivah. For the first time in six months—a child had seen the value for purposes of discussion—of everyone deciding on the best picture in the neighborhood and seeing it. Some had already chosen Eddie Cantor for this week-end. The succeeding week-end—it was Laurel and Hardy; and this week end, it is to be Silly Symphonies—that will form the basis for discussion. Thus we have been led into a thorough discussion of comedy in general, which is common to all movie programs.

With 100% attendance at our special matinee of "David Copperfield" on April 8th, we can start on another type of photoplay.

All of this has been related to prove again that if a child is old enough to go to a movie,—he is old enough to have developed within an appreciative awareness of the values to be found in fine photoplays.

### 35mm. Eastman or Dupont

Fresh Gray Backed Negative

Price 2 1/2c per Foot

for

AMATEURS or PROFESSIONALS

KINEMA KRAFTS KOMPANY

6510 Selma Ave. Hollywood, Calif. GLadstone 0276

# MINIATURE CAMERA PHOTOGRAPHY



Sunday in the park: Leicaphoto made on Eastman Super-sensitive Panchromatic Film developed in paraphenylene-diamine-glycin. Photo by A. Wolfman.



Sunset on the water provides excellent picture material. Photo by Karl A. Barleben, Jr.

**SCRATCH-PROOFING Negatives.** To the miniature camera photographer a scratch on the negative is quite a detriment for when the latter is enlarged during printing the scratch is also magnified, necessitating retouching of the print. If the negative is called upon often to make prints it is more likely to become scratched, because of the greater amount of handling it receives.

All photographers have valuable negatives which they desire to keep in good shape for an indefinite time, and it is usually the case that many prints are made from such negatives. It would be quite a boon if some process were available to the photographer whereby his negatives could be safeguarded against scratches and other mars that they would incur during ordinary use. The motion picture industry had such a process at its disposal for quite some time. It is known as the "Teitel's Scratch Proof Method," and it has not been made available to the miniature camera photographer.

The necessary chemical solution with which the film is treated is put up in six ounce bottles as a concentrated solution, and is diluted with fifteen parts of water for use, the film being treated after it has been washed. The emulsion is hardened without affecting the cellulose base, rendering it immune to scratches and abrasions from ordinary use, and the treated negative will be preserved during its life without discoloration due to age nor melting or decay of the gelatine. For more detailed information about this process the photographer is advised to write to Kin-O-Lux, Inc., 105 West 40th St., New York City.

**Steadying the Camera.** Due to the fact that the miniature camera is of such small size many photographers seem to have the idea that the use of a tripod is superfluous. On the other hand exercising care to keep the camera steady during exposure is extremely important with the small camera. A large camera because of its greater weight and bulk can be held more steadily during exposure, and the larger negative is usually not

subjected to a great degree of enlargement, so that any movement during exposure is not greatly magnified.

This is not the case with the small camera for its comparatively little weight makes it easy to jar during exposure, making it advisable whenever possible to use a fast shutter speed. This does not infer that slower speeds such as 1/20 sec., 1/10 sec., etc., cannot be used with a miniature camera with success. Quite the reverse, many fine photographs have been made with the small camera at slow shutter speeds. However, some people may naturally not be able to hold the camera very steady, and there are still many photographers who haven't learned the simple trick of squeezing the release button with the finger instead of using the whole arm to effect the exposure, thereby moving the camera. If a cable release is available, and the photographer is not adept at pressing the shutter release button properly, the use of the cable release will allow the hand to be held free of the camera when tripping the shutter.

However, a tripod insures steady results, especially when comparatively long exposures are made; so why not employ it whenever conditions permit. It is more important when lenses of long focal length are used, with cameras which permit the interchange of lenses. The longer the focal length of the lens the greater is the magnification of any movement of the camera during exposure.

For the miniature camera there are many unique tiny tripods which can be placed on a table, fence, etc., and then again the regular large tripod can be employed whenever it is convenient to do so.

Perhaps this short discussion may have conveyed the thought to the photographer that the small camera cannot be relied upon to give sharp negatives showing no trace of movement during exposure, unless a compara-

M

OVIOLA

FILM VIEWING and

REPRODUCING MACHINES

ALL MODELS ON DISPLAY—FOR SALE—FOR RENT

Illustrated Literature On Request

MOTION PICTURE CAMERA SUPPLY, INC.

723 7th AVE., NEW YORK CITY

CABLE: "CINECAMERA"

VARIABLE AREA RECORDERS

PATENT NO. 1985584. OTHERS PENDING

ALSO

35 mm to 16 mm

REDUCTION SOUND PRINTER

AND

SOUND EQUIPMENT

Cable address CRSCO

C. R. SKINNER MFG. Co.

125 HYDE STREET    PHONE ORDWAY 6909

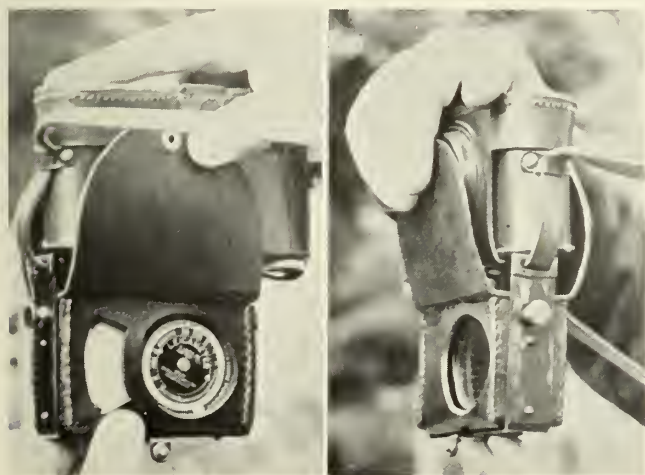
San Francisco, California    U. S. A.



tively fast shutter speed is used, unless a tripod is employed. This is not the case. The above suggestions are intended for those individuals who cannot seem to master the ability of holding the camera steady during exposure.

Before closing it is well to mention a hint suggested by a miniature camera enthusiast who also engages at target practice. He mentions that to insure steadiness just before and during the moment the trigger is pressed he presses his tongue to the roof of his mouth, which naturally causes him to hold his breath and keep the body steady. The same stunt can be applied to making exposures with the miniature camera.

*New Agfa Ansco Cameras.* Among a number of new cameras recently announced by Agfa Ansco called the Plenax cameras are three which accommodate the PB20 (620) film and permit either 8 pictures  $2\frac{1}{4} \times 3\frac{1}{4}$ , or 16 pictures  $2\frac{1}{4} \times 1\frac{5}{8}$ . These cameras are in the lower price



class, one being equipped with an Achromatic Antar lens, another with a Rapid Rectilinear f:11, and the third with an f:6.3 anastigmat.

*Fast Films.* It is a peculiar fact that amateurs are always employing the superspeed films even though the type of work they are doing does not warrant the use of a fast film. The comparatively great speed of the modern supersensitive film seems to hold a fascination for many photographers. This is not intended to degrade fast films for they are indispensable on many occasions, such as during the early morning or later afternoon, or in artificial illumination.

However, why employ a fast film when shooting in broad daylight in which case its great speed is not needed. Generally slower films give a finer grain, and also produce more snappy (contrasty) negatives. When engaged in ordinary outdoor photography an orthochromatic film such as, Perutz Neo-Persenso, Plenachrome, Verichrome, etc., or one of the special fine-grain panchromatic films, as Panatomic, Finopan, or Micropan, can be employed. These films have sufficient speed, and will also produce a negative with a finer grain.

*To Bulk Film Users.* Many photographers who own the cine film type of camera purchase their film in bulk instead of daylight loading and unloading cartridges or spools. Mr. E. W. Lewis of Riverside, Conn., has hit upon a good idea of making things much simpler in the matter of loading the magazines. He describes his home made aid as follows:

"A handy way to mount the film winder for use at home and particularly when traveling, is to attach it to a strong box, or a similar type of wooden container. This box should have a hinged lid and be light tight, when closed and fastened. When traveling the film, magazines, scissors, trimming guide, knife, etc., can all be placed in the box, and the film winder being firmly screwed to one

## BY AUGUSTUS WOLFMAN



side, is ready for instant use. When using it in the dark room the trimming—guide scissors, and magazine parts are placed on the opened cover and are easily found. If friend wife calls you from the dark room for something you just have to do right now, down goes the cover, and all is protected until you get back to finish the job."

Another simple gadget devised by Mr. Lewis is a hand agitator. This is made by merely cutting about an inch off the end of a regular clothes pin. By making two, one could be used for the developer, whereas the other can be employed when hypo is in the tank. Painting these two home-made agitator different colors will prevent them from becoming mixed up.

*Handy Case for the Exposure Meter.* Mr. Forman of Rahway, N. J. seems to have solved the problem of a simple and convenient manner of carrying about the exposure meter. Many photographers find their electric exposure meter bulky when it is suspended about the neck, or dropped in a pocket. In addition when the latter practice is adopted the glass of the meter may become scratched. Mr. Forman constructed from a piece of soft glove leather a handy case for his Weston Leicameter. This is attached to the eveready case of the Leica camera. In this manner the meter is well protected and does not present the problem of how to carry additional equipment. The accompanying illustrations show plainly how the meter is attached to the eveready case of the camera, and how easy it is to bring it into action.

*M. P. G. Formula.* In the May 1935 installment of this department two formulas suggested by the Edwal laboratories were listed, one containing paraphenylene-diamine, and the other paraphenylene-diamine hydrochloride, both having metol and glycin. The writer has used a single batch of the metol, paraphenylene-diamine formula for five rolls of film obtaining good fine-grain negatives showing excellent gradation. This developer seems to have good keeping qualities, and this single batch will

(Turn to Page 31)

### *The Last Word*

In Sound Recording

#### THE NEW PRINCIPLE MINOR QUARTZ OPTICAL UNIT

becomes an integral part of your sound recorder—this unit is cemented into a steel block—it focuses a beam of light of great intensity and actinic value a distance away and on the film, which PROVIDES CLARITY and PREVENTS SCRATCHING of the sound track. The width of the beam of light measures from .0005" to .0008" as it strikes the moving film.

This Quartz Optical Unit was used for the sound effects in the recent production of the "Tarzan" picture, filmed in Guatemala and referred to in the March issue of International Photographer.

Send for details and specimen of sound track.

**C. C. MINOR**

1835 Whitley Avenue

Phone: GR. 4781

Hollywood



## In Memorium

1890 — Charles Stumar — 1935

After twenty-four years of active service as a cameraman, Charles Stumar, one of the most skillful cinematographers in the Hollywood colony of the motion picture industry, passed away on July 6, 1935, the victim of a crack-up while piloting his own airplane.

He is survived by his wife and his brother John, also a cameraman of international reputation.

Deceased was a member of A. S. C. and was formerly a member of the Board of Executives of Local 659.

Among the celebrated stars of early days photographed by the deceased cameraman were Dorothy Dalton, Bessie Barriscale, Alma Rubens, Margery Wilson, Henry Walthall, Jack Kerrigan, Louise Glaum and many others both here and abroad.

He was a native of Germany and popular among his fellows and an ornament to his profession.

### RECENT PHOTOGRAPH AND SOUND PATENTS

By ROBERT FULWIDER

*Registered Patent Attorney*  
(Wilshire at La Brea, Los Angeles)

2,002,498—Projecting Machine & Optical System Therefor. Joseph Basson, New York City.

2,002,620—Photographic Sound Record. Alfred Whitaker, assignor to R. C. A.

2,002,733—Projection Screen. Francis Earle, assignor to the Mearle Corp., Montclair, N. J.

2,002,854—Selective Transmission for Motion Picture and Sound Projectors. Edwin Hadley, Brooklyn, N. Y.

2,003,029—Sound Picture System. Walter Alberseim, assignor to E. R. P. I.

2,003,276—Means and Method of Producing Uniform Motion in a Sound Film. Leonard Day, assignor to Polytechnic Development Corp. of New York.

2,003,381—Portable Talking Motion Picture Apparatus. Russel May, assignor to R. C. A.

2,003,510—Film Reel. Walter King, et al., of Chicago, Ill.

2,003,881—Auto-Collimated Objective for Color Photography. Geo. Grosset, et al., Paris, France.

2,003,937—Sound Picture Set. Franklin Hunt, assignor to Bell Telephone Lab.

2,003,971—Motion Picture Camera. Kurt Morsback, assignor to Siemens & Halske, Berlin, Germany.

2,003,442—Additive Fixed Filter Color System. Wilho A. Kosken, New York, N. Y.

2,004,583—Sound Reproducing System. David Neuman, assignor to Translux Daylight Picture Corp., New York City.

2,004,625—Method of Producing Photographic Dye-stuff Images. Bela Gaspar, Berlin, Germany.

2,004,986-2,004,987—Composite Motion Pictures. Fred Jackman, assignor to Warner Bros. Pictures, Inc.

2,004,992—Composite Motion Picture. Hans Koenkamp, assignor to Warner Bros. Pictures, Inc.

2,005,014—Focusing Device for Motion Picture Camera. Albert Tondreau, assignor to Warner Bros. Pictures, Inc.

2,005,068—Sound Reproducing Apparatus. Max Batsel, assignor to R. C. A.

2,005,096—Reel Arm for Motion Picture Projectors. Philip Malickson, Bala, Pa.

2,005,254—Film Takeup Mechanism. Bruce Burns, assignor to Hughes Industries Co., Ltd., Los Angeles.

2,005,368—Photographic Reversal Process. Kenneth Hickman, assignor to Eastman Kodak Co.

2,005,404—Motion Picture Film Magazine. Otto Wittel, assignor to Eastman Kodak Co.

2,005,425—Regenerative Sound Recording Device. Bernard Kwartin, Brooklyn, N. Y.

2,005,596—Sound Reproduction Projector. Gordon Scheibell, Newark, N. J.

2,005,737—Film Handling & Sound Reproducing Apparatus. Warren D. Foster, et al., assignors to Kinatome Patents Corp., New York, N. Y.

2,005,738—Apparatus for Feeding Material. Warren D. Foster, assignor to Kinatome Patents Corp.

2,005,777—Stereoscopic Photograph and Objective System. Ernest Draper, assignor to The Perser Corp., New York, N. Y.

2,005,847—Sound Film. Richard Schmidt, assignor to Agfa Ansco Corp.

2,005,914—Apparatus for Making and Reproducing Sound and Picture Records. Berthold Freund, Berlin, Schoneberg, Germany.

2,005,970—Color Photography. Ludwig Dieterich, assignor to Detracolor, Ltd., a Nevada corporation.

2,006,007—Camera for Taking Color Photographs. Josef Zimmer, Nurnburg, Germany.

2,006,217—Optical System for Photographic Sound Apparatus. James J. Morey, assignor to Tennie L. Morey, Portland, Oregon.

2,006,233—Combination Picture and Sound Recording and Reproduction in Motion Pictures. Henri Chretien, St. Cloud, France.





Television Test Film  
Don Lee Broadcasting System  
1932 — W6XAO

## Don Lee Television Head Called to Confer With Motion Picture Research Council



First steps toward a mutual understanding between the television and motion picture industries were taken at an informal luncheon and conference on July 2nd at which Harry R. Lubcke, Director of Television for the Don Lee Broadcasting System, was a guest of the Research Council of the Academy of Motion Picture Arts and Sciences. Carl Dreher, Director of the Sound Department at RKO-Radio Studios and Chairman of the Scientific Sub-committee of the Council, presided.

At the request of the Council, Mr. Lubcke sketched the television activity of the Don Lee Broadcasting System during the past five years. Details were presented of the first broadcast of the Don Lee Station W6XAO, the first ultra high frequency television transmitter on regular schedule in the United States, on December 23, 1931; the first reception of television in an airplane in the world on May 21, 1932, on a Don Lee cathode ray receiver of transmissions from W6XAO; television news reel transmissions of the Long Beach-Compton earthquake of March 10, 1933; the transmission of plays from the Stanford-University of Southern California football game of November 11, 1933, within three hours and forty-five minutes after the close of the game; the various steps in the total transmission of more than seven million feet of motion picture film, comprising Paramount features, Paramount short subjects, and Pathe news reels.

The motion picture representatives evinced interest in

the problems connected with bringing television to the American home. Mr. Lubcke described the comparatively simple, although desirably high antenna required for the reception of ultra high frequency transmissions, the absence of static and fading on the ultra high frequencies, and the decrease of ignition interferences from automobiles, with the growth of automobile radio installations.

Calling attention to the possible effects of television on the motion picture industry, Mr. Lubcke declared: "The hue and cry that television will destroy the motion picture industry is needlessly disturbing. Our television activities have long since passed the stage of conjecture. As early as 1932 we were making tests on special films for television on the lot of a major producer."

It was indicated that television would become a customer of the motion picture industry and as such could hardly be classed as its destroyer.

The close-up appearing on this page is from an early television test film.

### THE HOLLYWOOD STUDIO CLUB

Girls and women representing practically every State in the Union, and many foreign countries, make their home at the Hollywood Studio Club every year, the majority coming to Hollywood because of their interest in the screen or stage.

They have found in the Club not only a residence and club center, but also the comradeship of others interested in the same professions, advice as to making fine studio contacts, opportunities to meet those who have already attained success, and assistance in emergencies or unemployment.

In the year 1934 the Studio Club housed 397 girls; monthly average residence, 93; yearly total, 1,115; served 74,149 meals; provided activities with attendance of 3,000; carried 145 girls for three or more weeks during unemployment.

The rates for room and two meals a day are from \$7.00 to \$13.00 a week, the housing capacity is 105.

The Club is maintained by the National Board of the Y. W. C. A., sponsored by the Motion Picture Producers Association and endorsed by the Social Service Commission of Los Angeles. It does not receive funds from the Community Chest.

FRANK C. ZUCKER

J. BURGI CONTNER

### Motion Picture Camera Supply, Inc.

now has the Largest Stock of New and Used Modern Camera Equipment and Accessories of any Camera Supply House in the World!

#### NEW MITCHELL SOUND CAMERA NOW ON DISPLAY

We sell Simplex Portable 35mm Sound Projectors, Movielas — also new and used Mitchell, B. & H., Akeley, DeBrie Cameras and Equipment.

Regardless of your requirements, whether you want to buy or rent new or used equipment—call us for a quotation.

• We only sell equipment that is thoroughly guaranteed. •

• Phone, write, wire or cable for quotations. •

*Eastern Representatives*  
MITCHELL CAMERA CORPORATION  
HARRISON FILTERS  
FEARLESS PRODUCTS

**MOTION PICTURE  
CAMERA SUPPLY, Inc.**  
**723 Seventh Avenue., New York City**

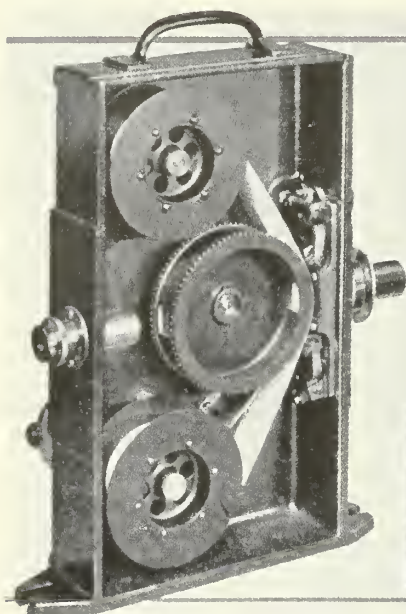
Telephone BRyant 9-7755

Cable Address: Cinecamera



# Super Speed Motion Pictures

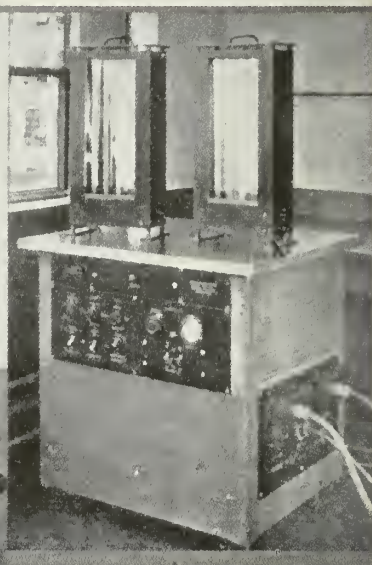
By HORATIO W. LAMSON\*



No. 1



No. 2



No. 3



LOW-MOTION movies of some famous pole vaulter floating leisurely and gracefully over a slender bar high above the ground, or of the 2 to 1 favorite horse crawling with tantalizing lassitude down the home stretch are always interesting to theater audiences who are mystified by the trick photography employed in producing such results.

The method of obtaining these intriguing pictures, which is, of course, familiar to all cinematographers, consists merely of running the ordinary motion picture camera at higher than normal speeds. Such a technique requires, naturally, either a more intense illumination of the object or the use of a faster lens than is necessary for normal speed operation. If the 200 frames which may be taken during an interval of one second by means of a superspeed intermittent-action camera, designed by A. S. Howell<sup>2</sup> are subsequently projected at a rate of say, 16 frames Cinematographic Annual, 1930.

per second, an event which occurred in one second will, of course, take  $12\frac{1}{2}$  seconds to show on the screen so that the observed speed of motion will then be slowed down  $12\frac{1}{2}:1$ .

When one attempts to increase this reduction ratio by a more rapid driving of an intermittent-motion picture camera, three serious obstacles arise.

First, the very rapid starting and stopping of the film as the frames are advanced, one at a time, between successive exposures, places tremendous accelerations and consequent strains upon the film which becomes in great danger of tearing or of igniting by friction.

Secondly, as the operating speed of the oscillating members of the intermittent mechanism is increased, it becomes more difficult to make them engage and otherwise function with the necessary precision to insure accurate and reliable framing.

In the third place, increased operating speed means, of course, reduced exposure time, which reaches its final practical limitations in the speed of available lenses, the permissible grain coarseness of high-speed emulsions, and the available lighting facilities.

The first and second of these difficulties have, to a certain extent, been overcome in various forms of high-speed movie cameras in which the film no longer advances intermittently a frame at a time, but travels at a constant, high rate of speed. Furthermore, the design of these cameras is such that all oscillatory motions are eliminated and only simple rotary motion, at constant speed, remains. Successive pictures are obtained by systems of rotary lens or prism members. Thereafter the question of obtaining sufficient exposure becomes the deciding factor in limiting the speed obtainable. Noteworthy examples of this technique are to be found in the Jenkins camera<sup>3</sup> and a camera recently developed by the Bell Telephone Laboratories.

This problem of superspeed motion pictures has been under-

taken in a radically different manner by Professor Harold Edgerton and his associates at the Massachusetts Institute of Technology. The fundamental principle of their procedure was similar to that employed by Abraham and Bloch.<sup>4</sup> In collaboration with the author's company, a form of camera has been developed through which it is possible to run ordinary 35-millimeter perforated film at essentially constant speeds as high as 75 feet per second, approaching a mile a minute and to take superspeed movies at the rate of 1200 full frames per second. This General Radio camera uses a single photographic lens of standard make with speeds varying between  $f/1.5$  and  $f/2.5$ . The camera has no shutter and contains no moving parts except the film driving sprocket, and the magazine and take-up reels.

The question naturally arises in the mind of the reader: "How can a series of pictures be taken with such a camera?" The answer is that the shutter, or equivalent optical mechanism heretofore used with a **continuously illuminated object** is replaced by a special form of flashing light known as a stroboscope. While ordinary daylight illumination of the object cannot leave any photographic impression upon the film moving at such high speed back of the wide-open lens, each flash of the stroboscopic light makes one normal exposure or frame on the film.

The form of stroboscope lamp employed for this purpose and capable of producing the desired results is a special type of mercury-vapor electric arc, likewise first developed by Professor Edgerton and commercialized by the General Radio Company. This new arc possesses three important attributes.

In the first place, the duration of each flash, that is, the **actual exposure time**, is only five microseconds (0.000005 second). The conception of such a short interval of time is difficult for one unaccustomed to think of such magnitudes, but it may, perhaps, help to recall that an automobile racing down the highway at 50 miles per hour can only advance a distance of  $1/200$ th

<sup>1</sup> Research Engineer, General Radio Company, Cambridge, Mass.

<sup>2</sup> "Evolution of the Professional Camera," by Joseph A. DuBray,

<sup>3</sup> "The Jenkins Chronotone Camera for High Speed Motion Studies," by C. Francis Jenkins, Transactions of the Society of Motion Picture Engineers No. 25.

<sup>4</sup> "Ultra-Rapid Kinematograph," by H. Abraham and L. Bloch, Comptes Rendus, December 1, 1919, No. 169.

Phone GLadstone 4151

## HOLLYWOOD STATE BANK

The only Bank in the Industrial District of Hollywood  
under State Supervision

Santa Monica Boulevard at Highland Avenue



of an inch or less, the thickness of a piece of paper, during this exposure time. Thus, although the object photographed may be moving at a high rate of speed, and although the film itself is traveling rapidly all the while, the time of exposure is so short that neither object nor film can move an appreciable distance during the exposure. As a result, good definition of high-speed objects can be obtained since, at maximum camera speed, the film moves only 0.004 inch during the full time of each exposure.

In the second place, during this extremely short exposure time, the intensity of the illumination is very great, for a perfectly normal exposure may be made **by a single flash** using an  $f/2.5$  lens with ordinary panchromatic film. All our readers know by experience how well an object must be illuminated to secure a normal exposure with an  $f/2.5$  lens and a fast 0.005 second shutter. They can, perhaps, realize how intense an illumination must be required to secure the **same exposure** in 0.000005 second, the equivalent of a shutter speed 10000 times as fast.

Finally, the exact instant at which each flash occurs can be determined very accurately by means of a commutator mounted directly on the shaft carrying the film sprocket so that, whatever the actual camera speed, the successive exposures on the film will be framed for subsequent projection, accurately and automatically. It is indeed hard to imagine any type of mechanical shutter capable of giving a normal exposure in 0.000005 second with a constantly illuminated object and, at the same time, being capable of repeating such a procedure 1200 or more times per second.

The accompanying illustration, Figure 1, shows a form of camera designed to take short runs of superspeed pictures. The upper magazine reel holds 100 feet of 35-millimeter negative which is fed down over a portion of the circumference of a 5-inch diameter driving sprocket and thence onto the take-up reel below. The exposure is made while the film is moving on the driving sprocket and forced to lie flat against the rim of the sprocket by upper and lower guide rollers. The optical system of the camera is such that the slight curvature of the sprocket over the  $\frac{3}{4}$ -inch length of each frame does not appreciably disturb the focus. By observing the back side of the film through two holes in the driving sprocket by means of a telescope in the rear of the camera, one may focus the adjustable lens mounting and align the camera on the region to be photographed. While the mechanism of this camera is quite simple compared to that of the standard intermittent-action machine, all parts must be made and fitted with considerable accuracy so that they shall function smoothly at the high speeds employed. A single slide gives access to the whole interior of the camera and, by employing black paper leaders for the film on the special light-tight magazine and take-up reels, loading and unloading may be accomplished in the daylight.

The other view, Figure 2, shows that two independent electric motors are used to drive this superspeed camera. One of these motors, mounted on the body of the camera, is connected directly to the shaft of the take-up reel. The other motor, mounted on the camera base, drives the shaft carrying both the external

framing commutator and the internal film sprocket by means of a belt. The use of these two motors and the proper design of the film path with the absence of any loops or film slack are vital to secure the quick initial acceleration and uniform travel at high film speeds obtained in this camera. The entire film magazine must be emptied with each shot, since it is impracticable to attempt to stop the film in transit at such speeds. The actual speed of the camera may be controlled by adjusting the voltages on the driving motors. At speeds below 500 frames per second the film may be stopped in transit, if desired.

Figure 3 shows the portable, table-type electrical power unit, which is energized from 60-cycle power mains, together with two large mercury-arc stroboscope lamps used for obtaining pictures at the rate of 1200 per second. A much smaller model of the same type of stroboscope, which is designed primarily for visual stroboscopic work, may, nevertheless, be used to take high-speed movies up to the comparatively "slow" speed of about 120 frames per second.

When superspeed speed movies taken at the rate of 1200 frames per second are subsequently projected 16 frames per second, the apparent speed of motion is slowed down to 75:1 and **an event actually occurring in one second takes one and one-quarter minutes in showing.** It should be borne in mind that these results are reflected light photographs and not merely the silhouettes obtained in most of the earlier forms of high-speed movies.

Equipment of this kind is extremely valuable in scientific and engineering studies of the motion and vibrations of high-speed machinery such as is found in the automotive, aeronautical, electrical, textile, woodworking and other industries.

From the point of view of a movie camera, the necessary stroboscopic light source limits the field of action to close-ups of a somewhat limited area. Nevertheless, many surprising shots of general interest have been made at these superspeeds, such as the kicking of the football, the stroke of a golf drive, the fall of an animal, the flight of birds and insects, the rapid movements of a snake's tongue, the interesting motions in a jet of water, the beautiful phenomena exhibited by a spatter of liquid drops in a pool or against a smooth hard surface, the shattering of objects, the impact of bullets, the wink of the eye and other physical motions, and so forth.

In addition to the regular practice of taking 1200 full  $\frac{3}{4}$ -inch frames per second, it is possible, by reducing the effective frame length on the negative and driving the sprocket at somewhat greater speeds, to attain three or four times this pictorial speed under certain conditions. Such "compressed" negatives must, of course, be separated to  $\frac{3}{4}$  of an inch frame spacing when printing the positive film for projection.

There is an old saying that the hand is quicker than the eye. While this may be true for the unaided, credulous eye of the victim of the old-time shell game, nevertheless the eye, aided by the superspeed movie camera, can convert the sudden motions of a magician or the fastest efforts of a great athlete into something far slower than the hesitant plodding of a reluctant schoolboy past the old swimming hole on a June morning.

# ROY DAVIDGE FILM LABORATORIES

...

An Exclusive "Daily" Laboratory

...

Quality and Service

6701-6715 SANTA MONICA BOULEVARD  
GRanite 3108

# AMATEUR ADVENTURE IN

**N**OT so many years ago night photography demanded lengthy exposures, the camera mounted upon a tripod. Indeed, night photography was comparatively rare, and those unfamiliar with photography considered anyone nothing short of mentally unbalanced if seen using a camera outdoors after dark, the generally accepted idea being that photography was possible only in bright sunlight. The years have brought radical changes, however, and it is now a common thing to see photographers snapping pictures at night with small cameras held in the hands. No longer is the bothersome and awkward tripod necessary. The tremendous strides that have been made by the manufacturers in lenses and films have made this possible. The miniature camera has really brought night photography on a par with daytime shooting.

The making of photographs after dark holds a certain fascination for every amateur. To begin with, it is somewhat novel, and then again, there is a certain thrill provided as one unlimbers a camera in the dark—it seems almost impossible to make pictures under such conditions because so deeply have our subconscious minds been steeped in the idea that photography requires sunlight. The modern generation, however, may not at all be awed or thrilled by this, because night photography will have been a part of their span of existence, hence they will not consider it as anything unusual.

Night photography has many possibilities, ranging from pictorial to commercial subjects. Let us begin with the amateur who just wants to try his hand at this type of work for the novelty of it. Certainly he could do a lot worse, for night scenes carefully made, are often prized pictures which draw forth admiration and comment.

The city dweller in all probability will head for the shopping and theatre section, where lights are to be found in abundance. It is a good plan to begin the study of night photography in such a place, for it is perhaps the easiest type of work and makes excellent picture material. The Times Square district in New York City is undoubtedly the most photographed spot at night in the world. Hundreds of movie photoplays have used scenes of Times Square at night, showing the multitude of brilliantly illuminated signs, many of them fantastic creations in which figures and words move about. It is a Paradise for the picture maker bent on getting some good shots. It is not today what it used to be, however, yet it still provides ample picture material for the amateur. Several years ago, the streets were very much like daylight owing to the hundreds of thousands of Mazda and Neon lamps which blazed away in the countless signs and shop windows. Several advertising signs were masterpieces, huge affairs which called attention to various products by means of cleverly animated figures and words; all in lights. The theatres cast dazzling-white light on the streets and under their marquees. Drug stores and restaurants, too, did their share to illuminate the streets. Now many of the theatres are closed and dark. The huge advertising signs have lost their sparkle and animation owing to a great reduction in the number of lamps and figures used. Still and all, Times Square still has some of the glamour and brilliance which characterized it several years ago.

There is a miniature Times Square in every city and town which offers the night photographer some interesting material. All he has to do is to select his proposed scenes and suit his equipment to them. Even a single incandescent sign can be made to produce a pleasing pattern of light against a jet-black background. It is well worth going after.

Street scenes at night are particularly attractive when there is snow on the ground, or after a rain while the pavements and buildings are still wet. With regard to the latter condition, special attention should be paid to reflections, for these can be made most decorative in the photographs. Snow helps the exposure greatly by reflecting a good percentage of the available light. The wet pavement, especially when smooth, glistens in the artificial light and provides all sorts of fantastic duplications of designs.

In making street scenes at night, especially of illuminated signs, two courses are open. One is to give as full an exposure as possible, striving to get as much detail in the darker area as can be secured. The second is to give a shorter exposure, striving only for the pattern of the sign or signs, permitting all else to go black.



Leica camera, Summar 50 mm. f:2 lens, shutter  
Ilford Hypersensitized Panchro

Of the two, the second method appears to be better, for the former is but at best a compromise, for it severely over-exposes the lamps or tubes in the signs, and gives only feeble results in the dark areas. The whole scene is likely to go gray in printing, giving a poor impression of night. The over-exposed signs show up hazy and fuzzy, making them anything but pleasing in appearance. When the exposure is aimed for the signs alone, better pictures in general result. The signs stand out clearly and sharply. Details in the dark areas, however, go jet-black. This is not serious, considering that it is but a compromise at best. On the contrary, beautiful patterns can often be secured by shooting signs at an angle. In the print, they will stand out beautifully clear and crisp, owing to the jet-black background.

Sometimes a trick is resorted to in night photography. In such cases, details of the street and buildings are wanted. It becomes necessary to set the camera upon a tripod, however, hence is not always convenient, nor practical. An exposure is made at dusk, while daylight is still available but weak. The negative is again exposed later, after night has completely set in, and the

*It is through the lense  
that New Worlds are  
Photographed*



# PHOTOGRAPHY AT NIGHT

lights have been turned on. In this case, we have an interesting photograph which gives an excellent impression of night. Detail in the darkened areas is easily seen, and the artificial lights in the office building windows and signs complete the picture very realistically and truthfully.

This method obviously has its disadvantages, for it is often impossible to set up a camera for an hour or more in the street with the assurance that it will not be disturbed. Naturally, the camera must occupy the exact same position for the second exposure as for the first, otherwise a double image will result.

Pictorial workers can frequently find a lonely street, particularly in the suburbs, where but one street-lamp furnishes all the illumination available in the particular area. Time exposures can be made with great success

though it can be readily understood that a speed lens is a decided asset in this work. Lenses of  $f:3.5$ ,  $f:3$ ,  $f:2.9$ ,  $f:2.5$ ,  $f:2$ , and  $f:1.5$  are mighty desirable. Unfortunately the extremely fast lenses are to be found, except in rare cases, on small cameras and miniature type cameras. Speed lenses for large cameras come very costly, hence not many amateurs are likely to be equipped with one. Naturally the slower the lens, the longer the exposure must be. The exact exposure depends entirely upon the amount of light available and the speed of the film used. I have photographed snapshot scenes in which the lens had to be stopped down to  $f:4.5$ !

The question of film is quickly and easily settled. Use the fastest panchromatic film available. Panchromatic film is of course recommended for this work because an orthochromatic film is "blind" to most colored lights which usually abound in display signs. The "pan" film does a good job in recording almost all of the colored lights and making the most of them.

For miniature cameras using cinema film, Agfa Superpan, DuPont Superior, Eastman Supersensitive Panchromatic, and Perutz Peromnia should be used without exception. For cameras using roll film and film pack, Agfa Superpan and Eastman Supersensitive Panchromatic are indicated. I have recently used the New Ilford Selo Hypersensitive Panchromatic film with excellent results, but owing to the higher cost of this film, it may not be a particularly popular one in America. It has given perfectly-timed negatives in Times Square at  $f:2$  and  $1/20$ th second exposure.

Beginners in night photography are likely to be disappointed on first seeing their developed negatives. They look so thin and weak, with only the lights of the signs standing out with any density at all. But viewing the negative is not proof of the pudding. When those negatives are placed in an enlarger and prints made, the full possibilities of them will then be seen.

A branch of night photography which can also be made to be profitable is that of photographing store windows. This commercial photographers do quite often, but the amateur, too, can experiment along this line. Windows which are brilliantly illuminated permit fully timed negatives to be made with comparatively short exposure speeds. A word of caution, however. Glass windows produce reflections, and in order to overcome them, the photographer must carefully check his position in order to avoid them. It is for this reason that commercial photographs of this type are made at night—the reflection of the traffic and buildings is "killed."

The miniature camera, or at least the small sized camera, really makes the most practical companion for night photography. It can be conveniently slipped into the pocket, loaded with a fast film, and all is ready whenever an opportunity presents itself. Incidentally, just because it is night, don't think that the sunshade should be left at home. A sunshade is of the greatest importance in night photography because of the unavoidable lights which are situated in every direction. The shade will be the means of securing flare-free negatives every time. An exposure meter will, in most cases, be superfluous, there rarely being sufficient light to record an accurate reading. Reasonable judgment will be found to be adequate, for at best, night photography is greatly a matter of trial and error.

The amateur photographer who has so far neglected this interesting branch of photography is really missing something. Why not plan to go out the next evening you have the chance? Take your pet small camera along, and see what you can do with it. I feel certain that you will ever after take your camera for walks at night in quest of new material of this nature.



0th second. Films used: DuPont Superior,  
Peromnia. Developer: MPG.

by shielding the light source (street-lamp) behind a tree trunk or similar object which happens to be available. The effect is greatly enhanced if the street is snow-covered. Pictures under such conditions can be made which include a person, or two people talking together. For example, the idea of one man asking another for a light could be worked up into a most interesting night shot. The flare of the match could be used to heighten the effect as the man lights his cigarette or cigar. Of course details have to be worked out beforehand, for it is discouraging to set up, preparatory to making such exposures, only to find that some tiny, obscure detail has been overlooked. The setting up of a tripod on a lonely or little frequented street offers no serious obstacles, whereas in the shopping center of a large city it is impossible. I have several times had to show my police or press pass in order to remain in Times Square long enough to get certain scenes with a motion picture camera (which of course demands a tripod).

The equipment required for night photography depends greatly upon the individual and the equipment available. Ordinarily, a lens of  $f:4.5$  can be used, al-

The Miniature Camera  
eng discovered in the  
Universe

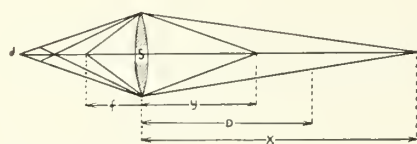


# ENGLISH AND METRIC LENS FOCUS TABLES

By PAUL R. HARMER

I am submitting herewith for the use of all cameramen concerned a lens focus table. These tables are worked out for the European stop numbers; the distances are given in metric measure, with corresponding tables in English feet and inches. The blank spaces are to be used for values computed by the user if that data is desired.

These tables have been worked out for a circle of confusion of one-tenth of a millimeter, which is small enough for contact prints and two to four times enlargement. If using a small film camera and making 8" x 10" prints, I would advise using a circle of confusion of one one-hundredth of a millimeter, which approximates two and one-fourth stop numbers smaller stop in order to sharpen the image on the photographic plate, thereby improving the sharpness of enlargements.



In the diagram you will notice that X is the far distance, Y is the near distance and D is the distance on which the lens should be focused to bring in both X and Y sharp at the selected stop number. S is the stop, f the focal length of the lens and d the circle of confusion. If the user desires to photograph separated points, one in the near distance and one in the far distance he can solve for the required stop by substituting known values in the S formula.

In the D formula you solve for the distance to be focused upon when X, Y and S are known.

$$X = \frac{f^2 D}{f^2 - ds (D-F)}$$

$$Y = \frac{f^2 D}{f^2 + ds (D-F)}$$

$$S = \frac{2 YXD - fD (X + Y)}{f^2 (X-Y)}$$

$$D = \frac{f^2 (X+Y)}{ds (X+Y)} + f$$

## METRIC

### 35 mm. LENS

### .1 mm. Circle of Confusion

PAUL R. HARMER

Meters	F 1.5		F 2.5		F 3.5		F 4.5		F 6.3		F 9.		F 12.5		F 18		F 25		F 36	
1.					0.8	1.4	0.7	1.5	0.7	2.0	0.6	3.4	0.5	101.	0.4	00	0.3	00	0.3	00
1.5					1.1	2.6	1.0	3.2	0.9	5.9	0.7	00	0.6	00	0.5	00	0.4	00	0.3	00
2.					1.3	4.6	1.2	7.1	1.0	00	0.8	00	0.7	00	0.5	00	0.4	00	0.3	00
3.					1.6	19.7	1.4	00	1.2	00	0.9	00	0.7	00	0.6	00	0.4	00	0.3	00
4.					1.9	00	1.6	00	1.3	00	1.0	00	0.8	00	0.6	00	0.4	00	0.3	00
5.					2.1	00	1.8	00	1.4	00	1.1	00	0.8	00	0.6	00	0.4	00	0.3	00
6.					2.2	00	1.9	00	1.5	00	1.1	00	0.8	00	0.6	00	0.5	00	0.3	00
7.					2.3	00	2.0	00	1.5	00	1.2	00	0.9	00	0.6	00	0.5	00	0.3	00
10.					2.6	00	2.1	00	1.7	00	1.2	00	0.9	00	0.6	00	0.5	00	0.3	00
15.					2.8	00	2.3	00	1.7	00	1.2	00	0.9	00	0.6	00	0.5	00	0.3	00
30.					3.2	00	2.5	00	1.9	00	1.4	00	0.9	00	0.7	00	0.5	00	0.3	00
50.					3.3	00	2.6	00	1.9	00	1.5	00	1.0	00	0.7	00	0.5	00	0.4	00



## 35 mm. LENS

## ENGLISH MEASURE

## 1.378 Inches

Distance Focussed	F 1.5		F 2.5		F 3.5		F 4.5		F 6.3		F 9		F 12.5		F 18		F 25	
3- 3.3					2-7	4-7	2-3	4-11	2-3	6-7	2-0	11-1	1-8	33-2	1-4	00	1-0	00
4-11.					3-7	8-6	3-3	10-5	2-11	19-2	2-3	00	2-0	00	1-7	00	1-3	00
6- 6.7					4-3	15-1	3-11	23-3	3-3	00	2-7	00	2-3	00	1-7	00	1-3	00
9-10.					5-3	64-7	4-6	00	3-8	00	2-11	00	2-3	00	1-11	00	1-3	00
13- 1.4					6-2	00	5-3	00	4-3	00	3-3	00	2-7	00	1-11	00	1-3	00
16- 4.8					6-10	00	5-10	00	4-7	00	3-7	00	2-7	00	1-11	00	1-3	00
19- 8.1					7-2	00	6-2	00	4-11	00	3-7	00	2-7	00	1-11	00	1-7	00
22-11.5					7-6	00	6-6	00	4-11	00	3-11	00	2-11	00	1-11	00	1-7	00
32- 9.6					8-6	00	6-10	00	5-6	00	3-11	00	2-11	00	1-11	00	1-7	00
49- 2.4					9-2	00	7-6	00	5-6	00	3-11	00	2-11	00	1-11	00	1-7	00
98- 5.					10-5	00	8-2	00	6-2	00	4-7	00	2-11	00	2-3	00	1-7	00
164- .4					10-9	00	8-6	00	6-2	00	4-11	00	3-3	00	2-3	00	1-7	00

## 40 mm. LENS

## 1.575 Inches

Distance Focussed	F 1.5		F 2.5		F 3.5		F 4.5		F 6.3		F 9		F 12.5		F 18		F 25	
3- 3.3					2-9	4-1	2-7	4-5	2-3	5-3	1-11	7-2	1-11	13-1	1-7	00	1-3	00
4-11.					3-7	7-2	3-7	8-2	3-3	11-5	2-7	27-2	2-3	00	1-11	00	1-7	00
6- 6.7					4-7	11-5	4-3	14-9	3-7	27-10	3-3	00	2-7	00	1-11	00	1-7	00
9-10.					5-10	28-10	5-3	59-0	4-7	00	3-7	00	2-11	00	2-3	00	1-7	00
13- 1.4					6-10	100-8	6-2	00	5-3	00	3-11	00	3-3	00	2-3	00	1-7	00
16- 4.8					7-10	00	6-10	00	5-6	00	4-3	00	3-3	00	2-7	00	1-11	00
19- 8.1					8-6	00	7-2	00	5-10	00	4-7	00	3-7	00	2-7	00	1-11	00
22-11.5					9-2	00	7-10	00	6-2	00	4-7	00	3-7	00	2-7	00	1-11	00
32- 9.6					10-2	00	8-6	00	6-10	00	4-11	00	3-7	00	2-7	00	1-11	00
49- 2.4					11-9	00	9-6	00	7-2	00	5-3	00	3-11	00	2-7	00	1-11	00
98- 5.					12-9	00	10-5	00	7-6	00	5-6	00	3-11	00	2-11	00	1-11	00
164- .4					13-9	00	10-9	00	7-10	00	5-6	00	3-11	00	2-11	00	1-11	00

## 50 mm. LENS

## 1.97 Inches

Distance Focussed	F 1.5		F 2.5		F 3.5		F 4.5		F 6.3		F 9		F 12.5		F 18		F 25	
3- 3.3					2-11	3-9	2-9	3-11	2-7	4-3	2-3	4-11	2-3	6-2	1-11	10-5	1-7	00
4-11.					3-11	6-2	3-11	6-6	3-7	7-10	3-3	10-2	2-11	18-0	2-3	00	1-11	00
6- 6.7					5-3	9-2	4-11	10-2	4-3	12-9	3-11	22-3	3-3	225-5	2-7	00	2-3	00
9-10.					6-10	16-8	6-6	21-0	5-6	37-0	4-7	00	3-11	00	3-3	00	2-7	00
13- 1.4					8-6	29-2	7-6	45-11	6-6	00	5-6	00	4-7	00	3-3	00	2-7	00
16- 4.8					9-10	53-9	8-6	153-2	7-2	00	5-10	00	4-7	00	3-7	00	2-7	00
19- 8.1					10-9	118-1	9-6	00	7-10	00	6-2	00	4-11	00	3-7	00	2-11	00
22-11.5					12-5	787-4	10-2	00	8-6	00	6-6	00	5-3	00	3-11	00	2-11	00
32- 9.6					13-9	00	12-5	00	9-6	00	7-2	00	5-6	00	3-11	00	2-11	00
49- 2.4					16-0	00	13-1	00	10-5	00	7-10	00	5-10	00	4-3	00	2-11	00
98- 5.					19-0	00	15-8	00	11-5	00	8-1	00	6-2	00	4-3	00	3-3	00
164- .4					20-7	00	16-4	00	12-5	00	8-6	00	6-2	00	4-3	00	3-3	00

## METRIC

## 55 mm. LENS

## .1 mm. Circle of Confusion

## PAUL R. HARMER

Meters	F 1.5	F 2.5	F 3.5	F 4.5	F 6.3	F 9	F 12.5	F 18	F 25	F 36							
1.				0.9	1.15	0.85	1.25	0.8	1.4	0.7	1.6	0.6	2.3	0.6	4.6	0.5	00
1.5				1.2	1.9	1.2	2.1	1.0	2.6	0.9	3.7	0.8	10.9	0.7	00	0.6	00
2.				1.6	2.8	1.4	3.4	1.3	4.7	1.1	10.3	0.9	00	0.8	00	0.6	00
3.				2.1	5.3	1.9	7.7	1.6	24.4	1.4	00	1.1	00	0.9	00	0.7	00
4.				2.5	9.7	2.2	21.4	1.8	00	1.5	00	1.2	00	0.9	00	0.7	00
5.				2.9	18.9	2.5	00	2.0	00	1.6	00	1.3	00	1.0	00	0.7	00
6.				3.2	52.2	2.7	00	2.2	00	1.7	00	1.3	00	1.0	00	0.7	00
7.				3.4	00	2.9	00	2.3	00	1.8	00	1.4	00	1.0	00	0.7	00
10.				4.0	00	3.3	00	2.5	00	1.9	00	1.4	00	1.1	00	0.7	00
15.				4.6	00	3.6	00	2.7	00	2.1	00	1.5	00	1.1	00	0.8	00
30.				5.4	00	4.2	00	3.0	00	2.2	00	1.6	00	1.2	00	0.9	00
50.				5.9	00	4.5	00	3.3	00	2.4	00	1.6	00	1.2	00	1.0	00

## 65 mm. LENS

1.				0.9	1.1	0.9	1.15	0.85	1.25	0.8	1.4	0.7	1.7	0.6	22.	0.6	4.9
1.5				1.3	1.75	1.2	1.9	1.1	2.2	1.1	2.6	0.9	3.8	0.8	98.	0.7	00
2.				1.7	2.5	1.6	2.8	1.4	3.4	1.3	4.7	1.1	11.5	0.9	00	0.8	00
3.				2.3	4.4	2.1	5.3	1.8	8.0	1.6	23.0	1.3	00	1.1	00	0.9	00
4.				2.8	6.9	2.5	9.6	2.2	25.1	1.8	00	1.5	00	1.2	00	0.9	00
5.				3.3	10.6	2.9	18.5	2.4	00	2.0	00	1.6	00	1.3	00	1.0	00
6.				3.7	16.3	3.2	48.8	2.7	00	2.2	00	1.7	00	1.3	00	1.0	00
7.				4.0	27.0	3.4	00	2.8	00	2.3	00	1.8	00	1.4	00	1.0	00
10.				4.8	00	4.0	00	3.2	00	2.5	00	1.9	00	1.4	00	1.1	00
15.				5.8	00	4.6	00	3.5	00	2.8	00	2.1	00	1.5	00	1.1	00
30.				7.1	00	5.6	00	4.1	00	3.0	00	2.2	00	1.6	00	1.1	00
50.				8.0	00	6.1	00	4.3	00	3.3	00	2.4	00	1.6	00	1.1	00

## 75 mm. LENS

1.				0.95	1.1	0.9	1.1	0.85	1.15	0.85	1.25	0.75	1.4	0.7	1.7	0.6	2.4
1.5				1.35	1.7	1.3	1.8	1.2	1.9	1.1	2.2	1.0	2.8	0.9	4.1	0.8	16.5
2.				1.7	2.4	1.6	2.6	1.5	2.9	1.4	3.5	1.2	5.2	1.1	13.8	0.9	00
3.				2.4	3.9	2.3	4.5	2.0	5.6	1.8	8.6	1.6	45.8	1.3	00	1.0	00
4.				3.0	5.8	2.8	7.1	2.5	10.8	2.1	30.7	1.8	00	1.5	00	1.1	00
5.				3.6	8.2	3.2	11.2	2.8	23.5	2.4	00	2.0	00	1.6	00	1.2	00
6.				4.1	11.4	3.6	17.8	3.1	126.	2.6	00	2.1	00	1.6	00	1.2	00
7.				4.5	15.6	3.9	31.1	3.3	00	2.8	00	2.2	00	1.7	00	1.3	00
10.				5.6	47.0	4.7	00	3.9	00	3.1	00	2.4	00	1.9	00	1.4	00
15.				6.8	00	5.6	00	4.4	00	3.5	00	2.6	00	2.0	00	1.4	00
30.				8.9	00	6.9	00	5.2	00	3.9	00	2.7	00	2.2	00	1.5	00
50.				10.0	00	7.6	00	5.7	00	4.1	00	2.8	00	2.4	00	1.5	00

## 55 mm. LENS

## ENGLISH MEASURE

## 2.165 Inches

Distance Focussed	F 2.5		F 3.5		F 4.5		F 6.3		F 9		F 12.5		F 18		F 25		F 36	
3- 3.3					2-11	3-7	2-9	4-1	2-7	4-7	2-3	5-3	1-11	7-6	1-11	15-1	1-7	00
4-11.					3-11	6-2	3-11	6-10	3-3	8-6	2-11	12-1	2-7	35-9	2-3	00	1-11	00
6- 6.7					5-3	9-2	4-7	11-1	4-3	15-5	3-7	33-9	2-11	00	2-7	00	1-11	00
9-10.					6-10	17-4	6-2	25-3	5-3	80-1	4-7	00	3-7	00	2-11	00	2-3	00
13- 1.4					8-1	31-9	7-2	70-2	5-10	00	4-11	00	3-11	00	2-11	00	2-3	00
16- 4.8					9-6	62-0	8-2	00	6-6	00	5-3	00	4-3	00	3-3	00	2-3	00
19- 8.1					10-5	171-3	8-10	00	7-2	00	5-6	00	4-3	00	3-3	00	2-3	00
22-11.5					11-1	00	9-6	00	7-6	00	5-10	00	4-7	00	3-3	00	2-3	00
32- 9.6					13-1	00	10-9	00	8-2	00	6-2	00	4-7	00	3-7	00	2-3	00
49- 2.4					15-1	00	12-5	00	8-10	00	6-10	00	4-11	00	3-7	00	2-7	00
98- 5.					17-8	00	13-9	00	9-10	00	7-2	00	5-3	00	3-11	00	2-11	00
					19-4	00	14-9	00	10-9	00	7-10	00	5-3	00	3-11	00	3-3	00

## 65 mm. LENS

## 2.559 Inches

Distance Focussed	F 2.5		F 3.5		F 4.5		F 6.3		F 9		F 12.5		F 18		F 25		F 36	
3- 3.3					2-11	3-7	2-11	3-9	2-9	4-1	2-7	4-7	2-3	5-6	1-11	7-2	1-11	16-0
4-11.					4-3	5-8	3-11	6-2	3-7	7-2	3-7	8-6	2-11	12-5	2-7	32-1	2-3	00
6- 6.7					5-6	8-1	5-3	9-2	4-7	11-1	4-3	15-5	3-7	37-8	2-11	00	2-7	00
9-10.					7-6	14-5	6-10	17-4	5-10	26-2	5-3	75-5	4-3	00	3-7	00	2-11	00
13- 1.4					9-2	22-7	8-1	31-5	7-2	82-4	5-10	00	4-11	00	3-11	00	2-11	00
16- 4.8					10-9	34-9	9-6	60-8	7-10	00	6-6	00	5-3	00	4-3	00	3-3	00
19- 8.1					12-1	53-5	10-5	160-1	8-10	00	7-2	00	5-6	00	4-3	00	3-3	00
22-11.5					13-1	88-6	11-1	00	9-2	00	7-6	00	5-10	00	4-7	00	3-3	00
32- 9.6					15-9	00	13-1	00	10-5	00	8-2	00	6-2	00	4-7	00	3-7	00
49- 2.4					19-0	00	15-1	00	11-5	00	9-2	00	6-10	00	4-11	00	3-7	00
98- 5.					23-3	00	18-4	00	13-5	00	9-10	00	7-2	00	5-3	00	3-7	00
164- 4					26-2	00	20-0	00	14-1	00	10-10	00	7-10	00	5-3	00	3-7	00

## 75 mm. LENS

## 2.952 Inches

Distance Focussed	F 2.5		F 3.5		F 4.5		F 6.3		F 9		F 12.5		F 18		F 25		F 36	
3- 3.3					3-1	3-7	2-11	3-7	2-9	3-9	2-9	4-1	2-5	4-7	2-3	5-6	1-11	7-10
4-11.					4-5	5-6	4-3	5-10	3-11	6-2	3-7	7-2	3-3	9-2	2-11	13-5	2-7	54-1
6- 6.7					5-6	7-10	5-3	8-6	4-11	9-6	4-7	11-5	3-11	17-0	3-7	45-3	2-11	00
9-10.					7-10	12-9	7-6	14-9	6-6	18-4	5-10	28-2	5-3	150-3	4-3	00	3-3	00
13- 1.4					9-10	19-0	9-2	23-3	8-2	35-5	6-10	100-8	5-10	00	4-11	00	3-7	00
16- 4.8					11-9	26-10	10-5	36-8	9-2	76-5	7-10	00	6-6	00	5-3	00	3-11	00
19- 8.1					13-5	37-4	11-9	58-4	10-2	413-4	8-6	00	6-10	00	5-3	00	3-11	00
22-11.5					14-9	51-2	12-9	102-0	10-9	00	9-2	00	7-2	00	5-6	00	4-3	00
32- 9.6					18-4	154-2	15-5	00	12-9	00	10-2	00	7-10	00	6-2	00	4-7	00
49- 2.4					22-3	00	18-4	00	14-5	00	11-5	00	8-6	00	6-6	00	4-7	00
98- 5.					29-2	00	22-7	00	17-0	00	12-9	00	8-10	00	7-2	00	4-11	00
164-4					32-9	00	25-11	00	18-8	00	13-5	00	9-2	00	7-10	00	4-11	00

## METRIC

## 90 mm. LENS

## .1 mm. Circle of Confusion

## PAUL R. HARMER

Meters	F 1.5	F 2.5	F 3.5	F 4.5	F 6.3	F 9	F 12.5	F 18	F 25	F 36							
1.				0.95	1.05	0.95	1.1	0.9	1.1	0.9	1.15	0.85	1.25	0.8	1.4	0.7	1.7
1.5				1.4	1.65	1.35	1.7	1.3	1.8	1.2	1.9	1.1	2.2	1.0	2.7	0.9	4.0
2.				1.8	2.25	1.75	2.35	1.7	2.5	1.5	2.8	1.4	3.5	1.3	4.9	1.1	13.1
3.				2.6	3.6	2.4	3.9	2.3	4.4	2.1	5.4	1.8	8.5	1.6	29.1	1.3	00
4.				3.3	5.1	3.1	5.7	2.8	7.1	2.5	10.1	2.1	30.7	1.8	00	1.5	00
5.				3.9	6.9	3.6	8.0	3.2	11.0	2.8	20.6	2.4	00	2.0	00	1.6	00
6.				4.5	8.9	4.1	11.0	3.6	17.5	3.1	66.0	2.6	00	2.1	00	1.7	00
7.				5.1	11.4	4.6	15.0	4.0	29.6	3.4	00	2.8	00	2.2	00	1.7	00
10.				6.5	22.2	5.7	42.3	4.8	00	3.9	00	3.1	00	2.5	00	1.8	00
15.				8.2	86.5	7.0	00	5.6	00	4.5	00	3.5	00	2.7	00	2.0	00
30.				11.3	00	9.1	00	6.9	00	5.3	00	3.9	00	2.9	00	2.1	00
50.				13.2	00	10.3	00	7.5	00	5.7	00	4.0	00	3.0	00	2.1	00

## 110 mm. LENS

2				1.85	2.15	1.8	2.2	1.75	2.35	1.7	2.5	1.6	2.8	1.4	3.3	1.3	4.5
3				2.7	3.4	2.6	3.5	2.5	3.8	2.3	4.3	2.1	5.2	1.9	7.4	1.6	18.8
4				3.5	4.7	3.3	5.0	3.1	5.6	2.9	6.6	2.5	9.4	2.2	19.3	1.9	00
5				4.2	6.1	4.0	6.7	3.7	7.8	3.3	10.0	2.9	17.8	2.5	00	2.1	00
6				4.9	7.7	4.6	8.6	4.2	10.6	3.7	15.1	3.2	46.0	2.7	00	2.2	00
7				5.6	9.4	5.2	10.8	4.6	14.2	4.1	23.7	3.5	00	2.9	00	2.3	00
10				7.3	15.7	6.6	20.3	5.8	36.3	5.0	00	4.0	00	3.3	00	2.6	00
15				9.7	28.8	8.7	54.5	7.1	00	5.9	00	4.7	00	3.6	00	2.8	00
30				14.3	00	11.8	00	9.3	00	7.5	00	5.5	00	4.2	00	3.0	00
50																	

## 130 mm. LENS

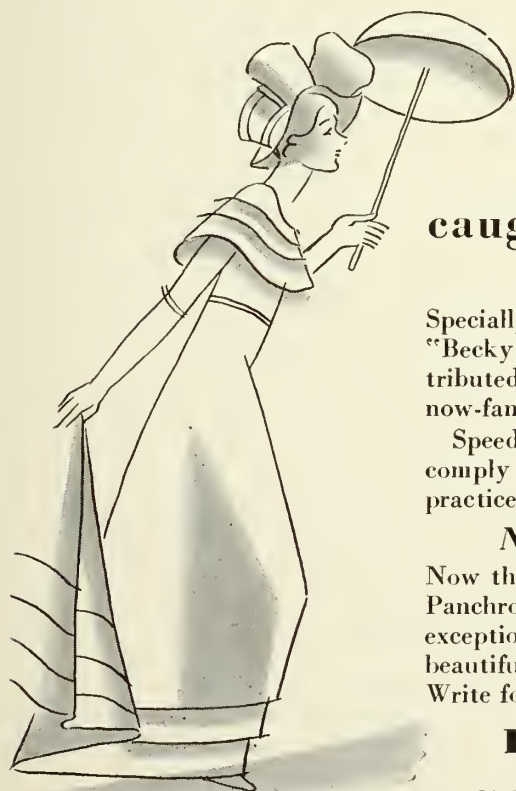
2				1.9	2.1	1.85	2.15	1.8	2.2	1.75	2.3	1.7	2.5	1.6	2.8	1.4	3.3
3				2.8	3.3	2.7	3.4	2.6	3.5	2.5	3.8	2.3	4.3	2.1	5.2	1.9	7.7
4				3.6	4.5	3.5	4.7	3.3	5.1	3.1	5.6	2.8	6.9	2.5	9.5	2.2	24.0
5				4.4	5.8	4.2	6.1	4.0	6.7	3.7	7.8	3.3	10.4	2.9	17.8	2.5	00
6				5.2	7.1	4.9	7.7	4.6	8.7	4.2	10.6	3.7	16.0	3.2	43.5	2.7	00
7				5.9	8.6	5.6	9.4	5.1	11.1	4.6	14.3	4.0	26.4	3.5	00	2.8	00
10				7.9	13.6	7.3	15.9	6.6	21.0	5.8	37.0	4.9	00	4.1	00	3.2	00
15				10.7	25.0	9.7	33.3	8.4	70.6	7.1	00	5.8	00	4.7	00	3.6	00
30				16.7	150.	14.2	00	11.6	00	9.3	00	7.1	00	5.6	00	4.2	00
50																	
75																	



90 mm. LENS				ENGLISH MEASURE				3.54 Inches			
Distance Focussed	F 2.5	F 3.5	F 4.5	F 6.3	F 9	F 12.5	F 18	F 25	F 36		
3- 3.3			3-1 3-5	3-1 3-7	2-11 3-7	2-11 3-9	2-9 4-1	2-7 4-7	2-3 5-6		
4-11.			4-7 5-4	4-5 5-6	4-3 5-10	3-11 6-2	3-7 7-2	3-3 8-10	2-11 13-1		
6- 6.7			5-10 7-4	5-8 7-8	5-6 8-2	4-11 9-2	4-7 11-5	4-3 16-0	3-7 42-11		
9-10.			8-6 12-5	7-10 12-9	7-6 14-5	6-10 17-8	5-10 27-10	5-3 95-5	4-3 00		
13- 1.4			10-9 16-8	10-2 18-8	9-2 23-3	8-2 33-1	6-10 100-8	5-10 00	4-11 00		
16- 4.8			12-9 22-7	11-9 26-2	10-5 36-0	9-2 67-7	7-10 00	6-6 00	5-3 00		
19- 8.1			14-9 29-2	13-5 36-0	11-9 57-4	10-2 216-6	8-6 00	6-10 00	5-6 00		
22-11.5			16-8 37-4	15-1 49-2	13-1 97-1	11-1 00	9-2 00	7-2 00	5-6 00		
32- 9.6			21-5 72-9	18-8 138-9	15-9 00	12-9 00	10-2 00	8-1 00	5-10 00		
49- 2.4			26-10 283-9	22-11 00	18-4 00	14-9 00	11-5 00	8-10 00	6-6 00		
98- 5.			37-0 00	29-10 00	22-7 00	17-4 00	12-9 00	9-6 00	6-10 00		
164- .4			43-3 00	33-9 00	24-7 00	18-8 00	13-1 00	9-10 00	6-10 00		

110 mm. LENS														4.33 Inches					
Distance Focussed	F 2.5		F 3.5		F 4.5		F 6.3		F 9		F 12.5		F 18		F 25		F 36		
6- 6.7					6-0	7-0	5-10	7-2	5-8	7-8	5-6	8-2	5-3	9-2	4-7	10-9	4-3	14-9	
9-10.					8-10	11-1	8-6	11-5	8-2	12-5	7-6	13-1	6-10	17-0	6-2	24-3	5-3	61-8	
13- 1.4					11-5	15-5	10-9	16-4	10-2	18-4	9-6	21-7	8-2	30-10	7-2	63-3	6-2	00	
16- 4.8					13-9	20-0	13-1	21-11	12-1	25-7	10-9	32-9	9-6	58-4	8-2	00	6-10	00	
19- 8.1					16-0	25-3	15-1	28-2	13-9	34-9	12-1	50-2	10-5	150-10	8-10	00	7-2	00	
22-11.5					18-4	30-10	17-0	35-5	15-1	46-6	13-5	77-8	11-5	00	9-6	00	7-6	00	
32- 9.6					23-11	51-6	21-7	67-7	19-0	119-1	16-4	00	13-1	00	10-9	00	8-6	00	
49- 2.4					31-9	94-5	28-6	178-9	23-3	00	19-4	00	15-5	00	11-9	00	9-2	00	
98- 5.					46-10	00	38-3	00	30-7	00	24-7	00	18-0	00	13-9	00	9-10	00	
164- .4										-	-	-							

130 mm. LENS														5.06 Inches					
Distance Focussed	F 2.5		F 3.5		F 4.5		F 6.3		F 9		F 12.5		F 18		F 25		F 36		
6- 6.7					6-2	6-10	6-0	7-0	5-10	7-2	5-8	7-6	5-6	8-2	5-3	9-2	4-7	10-9	
9-10.					9-2	10-9	8-10	11-1	8-6	11-5	8-2	12-5	7-6	14-1	6-10	17-0	6-2	25-3	
13-1.4					11-9	14-9	11-5	15-5	10-9	16-8	10-2	18-4	9-2	22-7	8-2	31-1	7-2	78-8	
16- 4.8					14-5	19-0	13-9	20-0	13-1	21-11	12-1	25-7	10-9	34-1	9-6	58-4	8-2	00	
19- 8.1					17-0	23-3	16-0	25-3	15-1	28-6	13-9	34-9	12-1	52-5	10-5	142-8	8-10	00	
22-11.5					19-4	28-2	18-4	30-10	16-8	36-4	15-1	46-10	13-1	86-7	11-5	00	9-2	00	
32- 9.6					25-11	44-7	23-9	52-1	21-7	68-10	19-0	121-4	16-0	00	13-5	00	10-5	00	
49- 2.4					35-1	82-0	31-9	109-2	27-6	231-7	23-3	00	19-0	00	15-5	00	11-9	00	
98- 5.					54-9	492-1	46-6	00	38-0	00	30-7	00	23-3	00	18-4	00	13-9	00	
164- .4									-	-	-								
246- .7									-	-	-								



# Speed Panchro Lenses

caught "*Becky Sharp*"

Specially modified for use on the Technicolor cameras which filmed "Becky Sharp," Taylor-Hobson Cooke F 2 Speed Panchro Lenses contributed materially to the remarkable color results achieved in this now-famous picture.

Speed Panchros are the logical lenses for color work because they comply fully with the color correction needs of modern production practice. Eleven focal lengths, 24 to 108 mm.

## New! 2¼-inch F 1.3 Special Speed Panchro

Now the extremely fast 2¼-inch F 1.3 has been added to the Speed Panchro series. It has the same full chromatic correction, and an exceptionally high degree of correction for other aberrations. Gives a beautifully crisp image even under the most adverse lighting conditions. Write for full details about this and the F 2 Speed Panchros.

## BELL & HOWELL COMPANY

EXCLUSIVE DISTRIBUTORS

1819 Larchmont Ave., Chicago; 11 W. 42nd St., New York; 716 N. LaBrea Ave., Hollywood; 320 Regent St., London (B & H Co., Ltd.) Est. 1907.

## METRIC

## 150 mm. LENS

## .1 mm. Circle of Confusion

## PAUL R. HARMER

Meters				F 2.5		F 3.5			F 4.5			F 6.3			F 9			F 12.5			F 18			F 25			F 36
2									1.95	2.1	1.9	2.1	1.85	2.15	1.8	2.25	1.7	2.4	1.6	2.5	1.5	2.8					
3									2.85	3.2	2.8	3.25	2.7	3.4	2.6	3.6	2.4	3.9	2.3	4.4	2.1	5.5					
4									3.7	4.4	3.6	4.5	3.5	4.8	3.3	5.1	3.0	5.9	2.8	7.1	2.4	11.2					
5									4.6	5.5	4.4	5.8	4.2	6.2	3.9	6.9	3.6	8.1	3.3	10.8	2.8	22.2					
6									5.4	6.8	5.2	7.2	4.9	7.8	4.5	8.9	4.1	11.5	3.6	17.1	3.1	92					
7						5.9	8.7		5.5	9.7			6.2	8.1	5.1	11.4	4.5	15.7	4.0	30.	3.3	00					
10									8.3	12.5	7.8	13.9	7.1	16.7	6.5	22.2	5.6	48.5	4.8	00	3.9	00					
15									11.6	21.3	10.6	25.7	9.4	37.0	8.2	86.5	6.8	00	5.7	00	4.4	00					
30									18.8	74.0	16.4	180.	13.7	00	11.2	00	8.9	00	6.9	00	5.2	00					
50																											
75																											

## 165 mm. LENS

2	1.94	2.06	1.92	2.09	1.89	2.13	1.85	2.2	1.8	2.3	1.7	2.4	1.6	2.6
3	2.87	3.15	2.82	3.21	2.75	3.3	2.7	3.4	2.5	3.7	2.4	4.1	2.2	4.8
4	3.75	4.25	3.7	4.4	3.5	4.6	3.4	4.9	3.2	5.4	3.0	6.2	2.6	8.2
5	4.6	5.4	4.5	5.6	4.3	6.0	4.1	6.4	3.8	7.3	3.5	9.0	3.0	13.9
6	5.5	6.6	5.3	6.9	5.0	7.4	4.7	8.2	4.3	9.8	3.9	12.9	3.4	26.7
7	6.3	7.9	6.0	8.3	5.7	9.1	5.3	10.2	4.8	12.8	4.3	18.9	3.7	77.0
10	8.6	11.9	8.2	12.9	7.5	14.8	6.9	18.2	6.1	28.5	5.3	101.	4.4	00
15	12.0	19.9	11.2	22.8	10.1	29.4	8.9	46.9	7.6	76.5	6.3	00	5.1	00
30	20.1	59.4	17.8	95.2	15.1	00	12.7	00	10.1	00	7.9	00	6.0	00
50	27.3	288.	23.4	00	18.9	00	15.2	00	11.5	00	9.0	00	6.5	00
75														

## 150 mm. LENS

## ENGLISH MEASURE

## 5.94 Inches

Distance Focussed	F 2.5	F 3.5	F 4.5	F 6.3	F 9	F 12.5	F 18	F 25	F 36							
6- 6.7			6-2	6-10	6-2	6-10	6-0	7-0	5-10	7-4	5-6	7-10	5-3	8-2	4-11	9-2
9-10.			9-4	10-5	9-2	10-7	8-10	11-1	8-6	11-9	7-10	12-9	7-6	14-5	6-10	18-0
13- 1.4			12-1	14-5	11-9	14-5	11-5	15-8	10-9	16-8	9-10	19-4	9-2	23-3	7-10	36-8
16- 4.8			15-1	18-0	14-5	19-0	13-9	20-3	12-9	22-7	11-9	26-6	10-9	35-5	9-2	72-9
19- 8.1			17-8	22-3	17-0	23-7	16-0	25-7	14-9	29-2	13-5	37-8	12-5	56-1	10-2	301-10
22-11.5			20-4	26-6	19-4	28-6	18-0	31-9	16-8	37-4	14-9	51-6	13-1	98-5	10-9	00
32- 9.6			27-2	41-0	25-7	45-7	23-3	54-9	21-5	72-9	18-4	159-1	15-9	00	12-9	00
49- 2.4			38-0	69-10	34-9	84-3	30-10	121-4	26-10	283-9	22-3	00	18-8	00	14-5	00
98- 5.			61-8	242-9	53-9	590-6	44-11	00	36-8	00	29-2	00	22-7	00	17-0	00
164- .4								-	-	-						
246- .7								-	-	-						

## 165 mm. LENS

## 6.50 Inches

Distance Focussed	F 2.5	F 3.5	F 4.5	F 6.3	F 9	F 12.5	F 18	F 25	F 36							
6- 6.7			6-2	6-9	6-3	9-6	6-2	7-0	6-0	7-2	5-10	7-6	5-6	7-10	5-3	8-6
9-10.			9-5	10-3	9-3	10-6	9-0	10-9	8-10	11-1	8-2	12-1	7-10	13-5	7-2	15-9
13- 1.4			12-3	13-11	12-1	14-5	11-5	15-1	11-1	16-0	10-5	17-8	9-10	20-4	8-6	26-10
16- 4.8			15-1	17-8	14-9	18-4	14-1	19-8	13-5	20-11	12-5	23-11	11-5	29-6	9-10	45-7
19- 8.1			18-0	21-7	17-4	22-7	16-4	24-3	15-5	26-10	14-1	32-1	12-9	42-3	11-1	87-7
22-11.5			20-7	25-11	19-8	27-2	18-8	29-10	17-4	33-4	33-4	41-11	14-1	61-11	12-1	246-7
32- 9.6			28-2	39-0	26-10	42-3	24-7	48-6	22-7	59-8	20-0	93-5	17-4	331-4	14-5	00
49- 2.4			39-4	65-3	36-8	74-9	33-1	96-5	29-2	153-10	24-11	250-9	20-7	00	16-8	00
98- 5.			65-11	194-10	58-4	312-4	50-2	00	31-7	00	33-1	00	25-11	00	19-8	00
164- .4			89-6	944-10	76-9	00	61-11	00	49-10	00	37-8	00	29-6	00	21-3	00
246- .7							-	-	-							
328- 1.							-	-	-							

## METRIC

## 180 mm. LENS

## .1 mm. Circle of Confusion

## PAUL R. HARMER

Meters	F 2.5	F 3.5	F 4.5	F 6.3	F 9	F 12.5	F 18	F 25	F 36	F 50								
2.			1.95	2.05	1.93	2.07	1.90	2.11	1.85	2.15	1.8	2.25	1.75	2.35	1.7	2.5	1.6	2.8
2.5			2.42	2.58	2.39	2.62	2.35	2.65	2.3	2.75	2.2	2.9	2.1	3.0	2.0	3.4	1.8	3.9
3.			2.89	3.12	2.85	3.15	2.8	3.25	2.7	3.4	2.6	3.6	2.5	3.8	2.3	4.4	2.1	5.3
3.5			3.35	3.65	3.3	3.75	3.2	3.9	3.1	4.0	3.0	4.3	2.8	4.7	2.6	5.6	2.3	7.2
4.			3.8	4.2	3.7	4.3	3.6	4.5	3.5	4.7	3.3	5.1	3.1	5.7	2.8	6.9	2.5	9.7
5.			4.7	5.4	4.6	5.5	4.4	5.8	4.2	6.1	3.9	6.8	3.6	8.0	3.3	10.8	2.9	19.7
6.			5.6	6.5	5.4	6.8	5.2	7.2	4.9	7.7	4.5	8.9	4.1	10.9	3.7	16.9	3.2	56.0
7.			6.4	7.7	6.2	8.1	5.9	8.6	5.5	9.5	5.1	11.3	4.6	14.8	4.0	28.9	3.4	00
10.			8.8	11.6	8.4	12.4	7.9	13.8	7.3	16.1	6.5	21.9	5.7	41.2	4.8	00	4.0	00
15.			12.4	18.9	11.6	21.1	10.6	25.5	9.5	35.0	8.2	83.2	7.0	00	5.7	00	4.6	00
20.			15.7	27.6	14.4	32.6	12.9	44.4	11.3	84.6	9.5	00	7.9	00	6.3	00	5.0	00
30.			21.2	51.3	19.0	71.7	16.4	173.	14.0	00	11.2	00	9.0	00	6.9	00	5.4	00
50.			29.5	164.	25.4	00	20.9	00	17.1	00	13.3	00	10.3	00	7.6	00	5.8	00
75.			36.7	00	30.6	00	24.3	00	19.5	00	14.5	00	10.9	00	8.0	00	6.0	00
100.			41.8	00	33.8	00	26.4	00	20.6	00	15.2	00	11.5	00	8.2	00	6.1	00

## 210 mm. LENS

2.	1.96	2.04	1.95	2.05	1.95	2.08	1.90	2.11	1.85	2.15	1.8	2.25	1.75	2.35	1.7	2.5
2.5	2.44	2.56	2.42	2.58	2.39	2.62	2.35	2.65	2.3	2.75	2.2	2.9	2.1	3.1	2.0	3.4
3.	2.92	3.09	2.88	3.13	2.85	3.2	2.8	3.25	2.7	3.4	2.6	3.6	2.4	3.9	2.3	4.4
3.5	3.39	3.62	3.35	3.65	3.3	3.75	3.2	3.9	3.1	4.1	2.9	4.3	2.7	4.8	2.5	5.6
4.	3.85	4.15	3.8	4.25	3.7	4.35	3.6	4.5	3.5	4.7	3.3	5.1	3.0	5.8	2.8	7.1
5.	4.85	5.25	4.7	5.4	4.5	5.5	4.4	5.8	4.2	6.2	3.9	6.8	3.6	8.1	3.2	11.0
6.	5.7	6.4	5.5	6.5	5.4	6.8	5.2	7.2	4.9	7.9	4.5	9.0	4.1	11.5	3.6	17.6
7.	6.6	7.5	6.4	7.8	6.2	8.1	5.9	8.7	5.5	9.7	5.0	11.4	4.5	15.7	3.9	30.3
10.	9.1	11.1	8.8	11.6	8.3	12.5	7.8	13.8	7.1	16.7	6.4	22.7	5.5	51.7	4.7	00
15.	13.0	17.7	12.4	19.1	11.5	21.5	10.6	25.7	9.3	38.1	8.1	98.5	6.7	00	5.6	00
20.	16.7	25.0	15.5	28.0	14.3	33.3	12.8	45.3	11.1	100.	9.4	00	7.6	00	6.2	00
30.	23.0	43.0	20.9	53.0	18.6	76.9	16.2	197.	13.5	00	11.1	00	8.7	00	6.9	00
50.	33.1	102.	29.2	175.	24.7	00	20.7	00	16.5	00	13.0	00	10.0	00	7.6	00
75.	42.5	317.	36.3	00	29.5	00	24.0	00	18.7	00	14.5	00	10.4	00	8.0	00
100.	49.5	00	41.2	00	32.9	00	25.9	00	20.0	00	15.2	00	10.7	00	8.2	00



180 mm. LENS					ENGLISH MEASURE										7.08 Inches				
Distance Focussed	F 2.5	F 3.5	F 4.5	F 6.3	F 9	F 12.5	F 18	F 25	F 36										
6- 6.7			6-2	6-9	6-3	6-9	6-2	6-11	6-0	7-5	5-10	7-4	5-8	7-8	5-6	8-2			
8- 2.3			7-11	8-5	7-10	8-7	7-8	8-8	7-6	9-0	7-2	9-6	6-10	9-10	6-6	11-1			
9-10.			9-5	10-2	9-4	10-3	9-2	10-7	8-10	11-1	8-6	11-9	8-2	12-5	7-6	14-5			
11- 5.6			10-11	11-11	10-9	12-3	10-6	12-9	10-2	13-1	9-10	14-1	9-2	15-5	8-6	18-4			
13- 1.4			12-5	13-9	12-1	14-1	11-9	14-9	11-5	15-5	10-9	16-8	10-2	18-8	9-2	22-7			
16- 4.8			15-5	17-8	15-1	18-0	14-5	19-0	13-9	20-0	12-9	22-3	11-9	26-2	10-9	35-5			
19- 8.1			18-4	21-3	17-8	22-3	17-0	23-7	16-0	25-3	14-9	29-2	13-5	35-9	12-1	55-5			
22-11.5			20-11	25-3	20-4	26-6	19-4	28-2	18-0	31-1	16-8	37-0	15-1	48-6	13-1	94-9			
32- 9.6			28-10	38-0	27-10	40-8	25-11	45-3	23-11	52-9	21-3	71-9	18-8	135-1	15-9	00			
49- 2.4			40-8	61-11	38-0	69-2	34-9	83-7	31-1	114-9	26-10	272-11	22-11	00	18-8	00			
65- 7.3			51-6	90-6	47-2	106-11	42-3	145-7	37-0	276-3	31-1	00	25-11	00	20-7	00			
98- 5.			69-6	168-3	62-3	235-2	53-9	330-5	45-11	00	36-8	00	29-6	00	22-7	00			
164- .4			96-9	538-1	83-3	00	68-6	00	56-1	00	43-7	00	33-9	00	24-11	00			
246- .7			120-4	00	100-4	00	79-8	00	63-11	00	47-6	00	35-9	00	26-2	00			
328- 1.			137-1	00	110-10	00	86-7	00	67-8	00	49-10	00	37-8	00	26-10	00			

210 mm. LENS					8.26 Inches														
Distance Focussed	F 2.5	F 3.5	F 4.5	F 6.3	F 9	F 12.5	F 18	F 25	F 36										
6- 6.7			6-3	6-8	6-2	6-9	6-2	6-9	6-2	6-11	6-0	7-0	5-10	7-4	5-8	7-8			
8- 2.3			8-0	8-4	7-11	8-5	7-10	8-7	7-8	8-8	7-6	9-0	7-2	9-6	6-10	10-2			
9-10.			9-7	10-1	9-5	10-3	9-4	10-5	9-2	10-7	8-10	11-1	8-6	11-9	7-10	12-9			
11- 5.6			11-1	11-10	10-11	11-11	10-9	12-3	10-5	12-9	10-2	13-5	9-6	14-1	8-10	15-9			
13- 1.4			12-7	13-6	12-5	13-11	12-1	14-3	11-9	14-9	11-5	15-5	10-9	16-8	9-10	19-0			
16- 4.8			15-10	17-2	15-5	17-8	14-9	18-0	14-5	19-0	13-9	20-4	12-9	22-3	11-9	26-6			
19- 8.1			18-8	20-11	18-0	21-3	17-8	22-3	17-0	23-7	16-0	25-11	14-9	29-6	13-5	37-8			
22-11.5			21-7	22-11	20-11	25-7	20-4	26-6	19-4	28-6	18-0	31-9	16-4	37-4	14-9	51-6			
32- 9.6			29-10	36-4	28-10	38-0	27-6	41-0	25-7	45-3	23-3	54-9	20-11	74-5	18-0	169-7			
49- 2.4			42-7	58-0	40-8	62-9	37-8	70-6	34-9	84-3	30-6	124-11	26-6	323-1	21-11	00			
65- 7.3			54-9	82-0	50-10	91-10	46-10	109-2	41-11	148-7	36-4	328-1	30-10	00	24-11	00			
98- 5.			75-5	141-0	68-6	173-10	61-0	252-3	53-0	646-3	44-3	00	36-4	00	28-6	00			
164- .4			108-7	334-7	95-9	574-1	81-	00	67-10	00	54-1	00	42-7	00	32-9	00			
246- .7			139-5	1040-	119-0	00	96-9	00	78-8	00	61-4	00	47-6	00	34-1	00			
328- 1.			162-4	00	135-10	00	107-11	00	84-11	00	65-7	00	49-10	00	35-1	00			

## REAL ACTION FOR YOUR MINIATURE CAMERA

(Continued from Page 4)

gers which make it necessary for all entrants to be better-than-average riders. From the standpoint of the camera, they are perfect for action.

But to get back to photography. How to make the most of opportunities presented by motorcycles? The first requirement is a small camera of the miniature type. There can be no question as to the superiority of this type of outfit. First, because of its small size, it is easily carried in a jacket pocket which, when riding a motorcycle, leaves the hands entirely free and occupies no space to speak of. Or again, it is easily tucked into one of the saddle-bags which a great many riders carry on the rear mud-guard of their mounts. Second, it offers speed in operation. In speed work, of the type under consideration, it often becomes necessary to make a series of sequence exposures in rapid succession—for things happen mighty fast at times where motorcycles are involved. One of the most practical aids in this direction is the rapid winder attachment which is made for the Leica camera only. By simply pulling a thin, steel cable on a ring, this camera is automatically set for the next exposure—as fast as you can pull that cable, so the intervals of time between exposures can be gauged. The quicker the camera can be operated, the better. Third, because nothing but a speedy shutter will hold these "popping demons," a shutter speed of 1/1000th is highly desirable, nay, necessary. Small cameras of the Leica type are equipped with such shutters and also fast lenses by means of which full exposures can be insured at high speeds even under unfavorable lighting conditions. So from all standpoints, the miniature camera cannot be reasonably ignored.


A few laws of photography come into play when we attempt photographing speeding motorcycles. The old law of photographing objects at an angle rather than directly broadside, coming across the field of view broadside at a high shutter speed, and at a distance, the chances are that the results will be disappointing. The motorcycle will appear lifeless, and in some cases may even show the wheels oval-shaped instead of round. Some may prefer this distortion, claiming that it injects the spirit of speed into the picture. This is so, of course, but most people are after an accurate record of the object rather than a pictorial or realistic interpretation of it. It naturally all depends upon the ideas of the photographer. The lens should be aimed at the object so as to show it either coming towards, or going away from the camera. This angle usually produces best results from a technical as well as pictorial standpoint.

Camera angles should be carefully watched, for they play a most important part in the photography of motorcycles. A low "worm's-eye" view is often desirable, showing the cloud flecked sky in strong contrast as the upper background of the picture. Wonderful ideas can be worked out around this suggestion, and

with the aid of the Wratten G or 23-A, the cameraist should get results which are far above the average.

In many cases it will be found impossible to approach the machines and riders sufficiently to secure reasonably large images on the film. From the standpoint of safety, too, it is usually desirable to be a short distance away from the actual field of activity. Particularly is this important in the case of hill-climbs where the best camera position is at or near the top or finish—it is here where the best action takes place—and also the wild buckings and spills. A telephoto lens would be the natural selection, and most workers therefore, use such lenses. Given a reasonably bright sun, a telephoto lens with a speed of f:4.5, speed film, and a quick eye, successful shots can be expected at from 1/500th to 1/1000th second exposures. The telephoto lens, aside from serving a practical purpose, also produces a more "plastic" effect which is entirely pleasing on shots in which powerful action of this nature is back-lighted and dust-laden.

It seems a pity that motorcycling has lain dormant in the public's mind for so long, for it is an ideal sport, comparable in every respect with horseback riding. As it offers such marvelous photographic opportunities, it should be more thought of by amateur cameraists in general. The comparative rarity of the machine makes it even more desirable for photographic purposes, for the photographer can produce pictures which stand apart from the usual run of action photos.

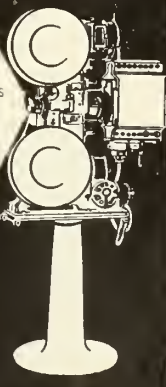


**EVERYTHING  
PHOTOGRAPHIC**

for Professional and Amateur

New and used. Bought, sold  
rented and repaired. Designers  
and manufacturers of the  
H.C.E. Combination Lens  
Shade and Filter Holder  
for any size lens.

Send for bargain catalogue  
**Hollywood Camera  
Exchange**  
1600 Cahuenga Blvd.  
Hollywood  
Tel.: HO-3651  
Cable:  
**HOCAMEX**







# The Facts About Block Booking

By EARL THEISEN



**W**HAT is block booking? It is surprising how few persons, even those connected with the motion picture, really know what block booking is or its significance to the industry.

Block booking is like the wholesale system of buying employed by other industries in which a store owner agrees to take a certain quantity of goods and in so buying secures the goods at a cheaper rate than if bought as single items. The exhibitor may buy the pictures singly, but he chooses the block because in buying the commodity in quantities it costs less.

In all big business, buyers contract in advance to use the season's output of a factory or a portion of it; so it is with the motion picture.

Business must be conducted on this basis so that finances can be arranged and the production of the factory regulated and distributed. The United States Steel Corporation conducts its business almost entirely on orders for future delivery. The same applies and has applied for years to the automobile industry.

Opponents to block booking claim that the system is responsible for the alleged anti-social aspects, the bed-room scenes and such stuff of the motion picture as has been criticized in the past. The opponents further charge that it obstructs the free distribution of pictures, fosters monopoly, etc. They view this established custom of picture distribution as a means of precluding anyone except those who control the major producing companies from successfully competing in the industry.

Is block booking just a device or subterfuge to enable the gigantic picture corporations to crush the small independent or is it a more efficient and economical means of distributing motion pictures? At present this controversial question is largely the result of lack of understanding of its advantages. Many arguments and fictions have been started as a camouflage behind which exhibitors can hide or which reformers and social workers can get their teeth in for a bit of functioning. This last named group who know little of economics of picture distribution are largely responsible for the dissatisfaction and litigation which has been raised. They have been told that block booking is responsible for allegedly undesirable pictures and that is sufficient.

Block booking is merely the wholesale method of handling picture distribution, and in block booking the theater owner is assured a continuous supply of pictures.

Block booking is not compulsory any more so than wholesale transactions in other lines of business. The producer studio through the distributor offers his entire output in a block. The theater man selects from this block list those pictures which he believes will make money in his theater, or in other words satisfy the community demands in which the theater is located. He may select from the block list anywhere from two to two hundred films; the remainder of the list is rejected and the theater man is not required to show the pictures as is popularly thought under the block booking system. The pictures shown in the

theater constitute a reflection of what the exhibitor feels will please his audience.

The block booking system has been criticized because the theater man is obliged to select in advance without seeing the picture.

It would be ridiculous to ask a grocery clerk to open a nationally advertised brand of canned soup. The brands on the grocery shelves are of a recognized quality and the purchaser knows what to expect in the can. The same is true in a general way in the purchase of pictures. That analogy is stretched, but the comparison in essence is correct. The producer of pictures manufactures a certain quality of film, and various directors do a definite type of picture. Boris Karloff does horror and mystery pictures while Shirley Temple does children subjects. Various picture makers have an established policy and reputation under which pictures are produced. The exhibitor knows this policy.

The theater man is not blindly buying under the block system any more than a subscriber to a magazine is blindly buying. The magazine subscriber knows that in the past a certain magazine has had a certain character of material. He knows that certain authors appearing in the magazine do a definite type of story. A church publication deals with church material while a breezy story magazine publishes breezy stories; likewise, a Mae West film is a Mae West and a Bing Crosby is a musical. When the exhibitor selects a Little Women film, he knows with a reasonable assurance that he will not be getting a bed-room story.

The truth of the matter is that theater men on the whole do not prefer such pictures as "Alice in Wonderland," for the obvious reason that such pictures have proven to be poor money makers. The exhibitor wants to make money and if the public won't spend money to see that type picture he is naturally reluctant about running it.

If the exhibitor does not like a certain picture, he is not obligated to run it. He is permitted a ten per cent cancellation on his contract on pictures which are considered commercially undesirable and unlimited cancellation of pictures undesirable from a community viewpoint. A few statistics on the type of pictures cancelled might prove of interest. "Call Her Savage," a picture that received much fire and objection from educators and women's clubs interested in social welfare, and other socially minded critics, had 8,420 contracts with only 70 cancellations. On the other hand "Calvacade," one of the best recent pictures, had 7,230 contracts and 229 cancellations. Which picture made money? Which picture did the public want to see?

We will choose two types of pictures for comparison; one which received moral objections and one which did not. It was found in New Orleans that "She Done Him Wrong" enjoyed tremendous popularity while "Alice in Wonderland" had 18 cancellations. In Kansas City "Alice in Wonderland" had 20 cancellations while "She Done Him Wrong" had no cancellations and 40 repeat bookings. In New York there were many repeat bookings on "She Done Him Wrong" and 30 cancellations on the other picture. The same situation exists around other pictures of this same type.

Does block booking actually affect the type of screen entertainment? Block booking is not a social issue, but theater owners will often lamely blame the system for their own inability of selecting pictures or because they are too busy to explain the system or because they need an excuse for the picture that is being shown. What would you do if a social

(Turn to Page 26)

**MAX FACTOR'S**  
NEW  
*Satin Smooth*  
**LIQUID FOUNDATION**  
A REVELATION IN FACIAL MAKE-UP



*The Supreme Negative—*

EASTMAN  
*Super X*

J. E. BRULATOUR, INC.

## BLOCK BOOKING

(Continued from Page 24)

reformer looked down his nose and asked: "Oh, why do you have 'to insult our intelligence with such films?" There is only one thing to do. Blame someone else. The theater owner can't very well take the time to argue out the fact that pictures which make money are the ones that he wants to run. And every picture will not please all the audience. There will be squawks with the best or the worst.

Box office value, not social value, determines the type of pictures made and exhibited. And the system of distribution should not be held responsible. The public prefers pictures that merely entertain and that is that.

Another fact regarding the element of compulsion allegedly present in block booking. A popular picture may be sold to as many as 14,000 theaters whereas another picture offered by the distributor in the same block may be rented by only one-tenth that number of theaters. A popular picture enjoys extended runs and may be seen in a dozen theaters in the same district simultaneously whereas a picture of less popularity if it does not "go over" is shelved.

On April 5, 1932, the United States Circuit Court made the following statement in its review of the Federal Trade Commission proceedings:

"The evidence in the record discloses that the effect of this method of negotiation has not been to unduly restrain the exhibitor's freedom of choice." Thus the legality of block booking is upheld.

A number of groups blame block booking for the anti-social aspects of some pictures. They blame the system of distribution for the quality of the product, rather than blame the box office who spend money to make that kind of picture a lucrative commercial success. Legislation has been sponsored by them against block booking such as the Brookhart Bill (No. 1003—71st Congress) introduced a number of years ago, and the recent Samuel B. Pettingill Bill introduced on March 6 of this year. This last named bill which is still being considered will in all likelihood not pass. The bill stipulates that block booking be banned and that a synopsis be furnished for each story with the idea of indicating the social value of the picture. A synopsis of a story could no more indicate the audience impression of the picture than could the statement: "I saw a dead herring," indicate how the herring smelled. The objectionable features of an anti-social picture are the result of implied suggestions for the most part which could never be outlined in a synopsis.

The crux of the matter lies in educating the public against naughty or shoddy pictures just as school children studying literature have been taught the unsatisfactory elements of a dime story. First of all the critics, reformers and social improvers must define and get together on a code that embraces just what they consider good. As it now stands one community will consider a kiss on the screen undesirable; fifty miles away in a neighbor community it is all right. One city won't permit the showing of a gun on the screen even in the hands of a police man; another city nearby considers it harmless.

An interesting fact of the argument about block booking in relation to the social value of pictures lies in the fact that the tremendous improvement which all public spirited groups have recognized in pictures during the past eighteen months has occurred under the same old system of block booking. If this system distributed all those pictures under which objections were made and now distributes with equal facility a product which most of the non-partisan outside groups endorse in 96 per cent of its entirety, there would seem to be a reasonable conclusion that pictures can deteriorate or improve under block booking.

Pictures are made good or bad at studios, not while being distributed.

Despite the apparent advantages of block booking there is agitation in favor of abolishing wholesale distribution of pictures. This group wants to substitute, instead, a system of selective buying. Such a system would upset the present systematic and timely distribution of pictures. More than that the costs of distribution would be greatly increased. Under the selective system the exhibitor would have to view in advance each picture offered by the producers. With over 700 pictures in addition to short subjects being produced annually, the impossibility of personally previewing each one is apparent. It is estimated that the exhibitor would have to spend 175 days of eight hours each in projection rooms in order to ascertain what pictures to select. Moreover, the expense of such previewing would be tremendous.

Nothing would be more disastrous to the small theater owner and the audiences in general because this cost would be saddled on them. It has been estimated theater tickets would raise in price at least thirty per cent.

Salesmen should have to cover the territories to market one or two pictures as they are available whereas in the block booking system pictures are shipped according to the pre-season contract. In the selective system the exhibitor would have no definite assurance of a constant supply of pictures, and publicity

# Scheibe's

## FILTERS

In World-Wide Use

produce Moonlight and Night Effects in Daytime - Fog Scenes - Diffused Focus, and many other effects With any Camera - In any Climate

**George H. Scheibe**

**ORIGINATOR OF EFFECT FILTERS**  
1927 WEST 78TH ST. LOS ANGELES, CAL.

HOLLYWOOD STUDIOS USE THEM IN EVERY PRODUCTION

and program arrangements require that the exhibitor know far in advance what pictures he will screen.

In the fall of 1923 Paramount tried to initiate a separate picture sales system, a selective system, but found the trade unwilling to accept it. The exhibitors wanted to buy and book wholesale and in advance. After a few weeks trial and a loss of over a million dollars Paramount was forced to abandon it and return to the wholesale group selling.

Many groups and individuals who do not know the mechanics of distribution have been objecting to block booking in perfect good faith feeling that the system was responsible for objectionable films.



## CAMERA & PROP RENTALS

**Camera Supply Co.**  
1515 Cahuenga Blvd.  
Hollywood, Calif.

Ruddy Geraus, Manager  
GLadstone 2404

Nite Phone GLadstone 6583  
Cable Address — "CAMERAS"

## KODACHROME NOW AVAILABLE IN 16 mm. FIFTY- FOOT ROLLS AND PACKETTE MAGAZINES

Here's news for amateur cinematographers who own 16 mm. movie cameras of 50 foot capacity or those who prefer to shoot 50 foot lengths of Kodachrome instead of the 100 foot rolls. Cine-Kodak Kodachrome Safety Film heretofore supplied only in 100 foot 16 mm. rolls and consequently limited to cameras with that film capacity, is now available in 50 foot rolls, or Packette film magazine.



## A DAY AT HOME WITH MY MINIATURE CAMERA

(Continued from Page 5)

across the way and a trigger finger on the cable release. When the victim pauses for a breath, get that picture! This requires some patience and practice, but sometimes it actually brings surprising results.

It is really great sport to photograph members of the family and friends at home. Furthermore, home is a very good place to become acquainted with the various phases of photography. If we first learn some miniature camera technique at home, we will be sure of ourselves when we have occasion to photograph away from home, for we may well encounter similar conditions.

The other morning I found myself looking forward to a full, free day at home. After breakfast, I took my camera in hand and said, "Leica you and I are going to stay at home today. We're going to fish in our home pond, and we may get some interesting bites . . . Anyway, we shall see what happens."

"What shall we try first? Ah, my sister is probably sleeping the sleep of a half-dead person. Shall we immortalize her morning slumbers?" Leica assented with a one-second click at  $f:3.5$ . The only light for the picture entered through two windows whose shades were half-drawn.

Leica and I then tiptoed out of her room and down-

stairs. Out-of-doors the sun was shining, and we were tempted. We tried several views of the house; the one showing the doorway was given one one-hundredth of a second at  $f:6.3$ . Then we visited the chickens, doves, and pheasants. We coaxed the Japanese Silkie chickens into posing for their portraits. Using  $f:4.5$  at one-fourtieth of a second, I snapped them in their pen.

The flowers in the garden were very attractive. I told Leica to be patient a moment while I gathered a few for the house. The flower arrangement was photographed with the help of two reflectors (sheets) and a 60 watt lamp in the reflector. Exposure time was one-fifth of a second at  $f:6.3$ . Before we had finished with the flowers, there came my sister tripping down the stairs. We found her a few minutes later enjoying the morning paper with her solitary and late breakfast. "Now we have a model," I joyfully shouted. And so we caught Miss Margot again, this time with the aid of one Photoflood in a reflector at a considerable distance plus the light from two windows. I used  $f:4.5$  at half a second.

After Margot had finished her breakfast, I tried some interiors. The view through the arch into the dining room was lighted by one Photoflood in a reflector which was waved around during the four second exposure at  $f:9$

## THE WESTERBERG CINEMATOGRAPHER'S BOOK OF TABLES

(Nos. 1 and 4, published in July, are reprinted because of typographical errors.)

CHECKING THE CAMERA SPEED  
35 mm. FILM  
FOR CAMERA SPEEDS BELOW NORMAL

Camera Speed in Pictures Per Second	Relative Camera Speed	Relative Velocity of a Moving Object on the Screen	FEET OF FILM TIMED			
			1	5	10	15
			STOP WATCH READING IN SECONDS			
24	1.00	1.00	....	3.3	6.7	10.0
23	.96	1.04	....	3.5	7.0	10.4
22	.92	1.09	....	3.6	7.3	10.9
21	.87	1.14	....	3.8	7.6	11.4
20	.83	1.20	....	4.0	8.0	12.0
19	.79	1.26	....	4.2	8.4	12.6
18	.75	1.33	....	4.4	8.9	13.3
17	.71	1.41	....	4.7	9.4	14.1
16	.67	1.50	....	5.0	10.0	15.0
15	.62	1.60	....	5.3	10.6	16.0
14	.58	1.71	....	5.7	11.4	17.1
13	.54	1.85	....	6.2	12.3	18.5
12	.50	2.00	....	6.6	13.3	20.0
11	.46	2.18	....	7.3	14.5	21.8
10	.42	2.40	....	8.0	16.0	24.0
9.6	.40	2.50	....	8.3	16.7	25.0
9	.37	2.66	....	8.9	17.8	26.6
8	.33	3.00	2.0	10.0	20.0	30.0
7	.29	3.44	2.3	11.4	22.8	34.4
6	.25	4.00	2.7	13.3	26.6	40.0
4.8	.20	5.00	3.3	16.7	33.3	50.0
4	.17	6.00	4.0	20.0	40.0	60.0
3	.12	8.00	5.3	27.0	53.0	.....
2.4	.10	10.00	6.6	33.0	.....	.....
2	.08	12.00	8.0	40.0	.....	.....
1	.04	24.00	16.0	.....	.....	.....

No. 1

TIME CONVERTED TO FEET OF FILM  
35 mm. FILM  
FOR CAMERA SPEEDS ABOVE NORMAL

SECONDS	CAMERA SPEED IN PICTURES PER SECOND							
	24 (1X)	36 (1½X)	48 (2X)	72 (3X)	96 (4X)	120 (5X)	144 (6X)	192 (8X)
	FEET OF FILM EXPOSED							
1	1½	2¼	3	4½	6	7½	9	12
2	3	4½	6	9	12	15	18	24
4	6	9	12	18	24	30	36	48
6	9	13½	18	27	36	45	54	72
8	12	18	24	36	48	60	72	96
10	15	22½	30	45	60	75	90	120
12	18	27	36	54	72	90	108	144
14	21	31½	42	63	84	105	126	168
16	24	36	48	72	96	120	144	192
18	27	40½	54	81	108	135	162	216
20	30	45	60	90	120	150	180	240
22	33	49½	66	99	132	165	198	262
24	36	54	72	108	144	180	216	288
26	39	58½	78	117	156	195	234	312
28	42	63	84	126	168	210	252	336
30	45	67½	90	135	180	225	270	360
32	48	72	96	141	192	240	288	384
34	51	76½	102	153	204	255	306	408
36	54	81	108	162	216	270	324	432
38	57	85½	114	171	228	285	342	456
40	60	90	120	180	240	300	360	480
42	63	94½	126	189	252	315	378	504
44	66	99	132	198	264	330	396	528
46	69	103½	138	207	276	345	414	552
48	72	108	144	216	288	360	432	576
50	75	112½	150	225	300	375	450	600
52	78	117	156	234	312	390	468	624
54	81	121½	162	243	324	405	486	648
56	84	126	168	252	336	420	504	672
58	87	130½	174	261	348	435	522	696
60	90	135	180	270	360	450	540	720

No. 2

Please mention The International Photographer when corresponding with advertisers.

in order to kill any strong shadows. Light coming through the windows in the dining room, of course, helped out.

In the afternoon, a bridge party of my mother's and the play of two of my little cousins occupied us. The ladies were flattered by our attentions. We gave them half a second at  $f:3.5$  and recorded one of the decisive moments of the game.

With Patty and Tim, it was different. They romped, and they ran, and they would not remain still for a picture. I was thankful to have my little Leica so as to be able to run after them. Finally Tim and I engaged in a bit of warfare. Just as he shot me, I "shot" him (one two-hundredth of a second at  $f:6.3$ ). Patty and Poncho, the big pointer dog, had been chasing each other in a strenuous game of tag. I found them pausing to rest under the shade of a big oak tree. One-sixtieth of a second at  $f:4.5$  was the exposure.

Patty, Tim and the ladies went home, and it was dinner time. As usual my father got our diminutive parrot, Big Boy, out of his cage so that he might eat his dinner with the family. Hurriedly, I placed a couple of Photofloods in the fixture on the side of the room behind the camera. With a fifth of a second exposure at  $f:3.5$ , we snapped Mr. Big Boy on my father's shoulder.

Washing the dinner dishes fell to my lot that evening; therefore, I determined to make it a pleasant process and proof of my dishwashing ability. In the middle of the ceremony, I climbed up into the window and shot down at the dishes, using  $f:4.5$  at one thirtieth of a second.

There were two Photofloods in reflectors, one above and one at the side.

After the dishes were finished, I discovered father in the living room, deeply engrossed in the evening paper. I placed the camera on a table, because I did not wish to disturb his pose by setting up a tripod and lights. The exposure was  $f:3.5$  at two seconds, and he did not become conscious of it!

That evening, my sister and her boy friend were going out to a dance. I asked them if they had a minute or two in which they could pretend they were movie stars attending a preview. "Of course," they chimed, because they really felt well-dressed. "All right," I said. "When I tell you that I am ready, go out this side door and walk around and come in the front-door, but don't look in the hall while I'm getting ready for you." They assented and I set to work. My two bright Photofloods, I put in reflectors close to the door and set the Leica for a sixtieth of a second exposure at  $f:4.5$ , guessing at the approximate distance. Then I called, "ready." In a moment, Margot and Douglas opened the door. Notice how surprised yet pleased they look!

It was drawing near bedtime, but my father was becoming interested in what I had been doing. So I coaxed him to pose at his bar, whiskers and all for the last picture of the day. With one Photoflood, the exposure was half a second at  $f:3.5$ . Then off I went to bed with my Leica under the pillow. In case of a nightmare trip, I

(Turn to Page 31)

## TIME CONVERTED TO FEET OF FILM

### 35 mm. FILM

#### FOR CAMERA SPEEDS BELOW NORMAL

MINUTES SECONDS	CAMERA SPEED IN PICTURES PER SECOND							
	24	20	16	12	8	6	4	3
	FEET OF FILM EXPOSED							
1	1.5	1.25	1	.75	.5	.38	.25	.19
3	4.5	3.75	3	2.25	1.5	1.12	.75	.56
6	9.0	7.50	6	4.50	3.0	2.25	1.50	1.12
9	13.5	11.25	9	6.75	4.5	3.37	2.25	1.68
12	18.0	15.00	12	9.00	6.0	4.50	3.00	2.25
15	22.5	18.75	15	11.25	7.5	5.62	3.75	2.81
18	27.0	22.50	18	13.50	9.0	6.75	4.50	3.35
21	31.5	26.25	21	15.75	10.5	7.88	5.25	3.91
24	36.0	30.00	24	18.00	12.0	9.00	6.00	4.50
27	40.5	33.75	27	20.25	13.5	10.12	6.75	5.06
30	45.0	37.50	30	22.50	15.0	11.25	7.50	5.62
33	49.5	41.25	33	24.75	16.5	12.38	8.25	6.18
36	54.0	45.00	36	27.00	18.0	13.50	9.00	6.70
39	58.5	48.75	39	29.25	19.5	14.62	9.75	7.26
42	63.0	52.50	42	31.50	21.0	15.75	10.50	7.82
45	67.5	56.25	45	33.75	22.5	16.88	11.25	8.38
48	72.0	60.00	48	37.00	24.0	18.00	12.00	9.00
51	76.5	63.75	51	39.25	25.5	19.12	12.75	9.56
54	81.0	67.50	54	41.50	27.0	20.24	13.50	10.12
57	85.5	71.25	57	43.75	28.5	21.37	14.25	10.68
1-00	90	75	60	45	30	22.5	15	11.25
2-00	180	150	120	90	60	45.0	30	22.50
3-00	270	225	180	135	90	67.5	45	33.75
4-00	360	300	240	180	120	90.0	60	45.00
5-00	450	375	300	225	150	112.5	75	56.25
6-00	540	450	360	270	180	135.0	90	67.50
7-00	630	525	420	315	210	157.5	105	78.75
8-00	720	600	480	360	240	180.0	120	90.00
9-00	810	675	540	405	270	202.5	135	101.2
10-00	900	750	600	450	300	225.0	150	112.5

No. 3

Please mention The International Photographer when corresponding with advertisers.

## CHECKING THE CAMERA SPEED

### 35 mm. FILM

#### FOR CAMERA SPEEDS ABOVE NORMAL

Camera Speed in Pictures Per Second	Relative Camera Speed	Relative Velocity of a Moving Object on the Screen	FEET OF FILM TIMED			
			30	40	50	100
			STOP WATCH READING IN SECONDS			
24	1	1.000	20.0	26.7	33.3	66.7
30	1¼	.800	16.0	21.4	26.7	53.3
36	1½	.666	13.4	17.8	22.3	44.5
42	1¾	.571	11.5	15.3	19.0	38.0
48	2	.500	10.0	13.4	16.6	33.3
54	2¼	.444	8.9	11.8	14.8	29.6
60	2½	.400	8.0	10.6	13.3	26.6
66	2¾	.364	7.3	9.7	12.1	24.2
72	3	.333	6.7	8.9	11.1	22.2
78	3¼	.306	6.2	8.2	10.2	20.5
84	3½	.286	5.7	7.6	9.5	19.0
90	3¾	.266	5.3	7.1	8.9	17.8
96	4	.250	5.0	6.7	8.3	16.6
102	4¼	.235	4.7	6.3	7.8	15.7
108	4½	.222	4.4	5.8	7.4	14.8
114	4¾	.210	4.2	5.6	7.0	14.0
120	5	.200	4.0	5.3	6.7	13.4
126	5¼	.190	3.8	5.1	6.3	12.7
132	5½	.182	3.6	4.9	6.1	12.2
138	5¾	.174	3.5	4.6	5.8	11.6
144	6	.167	3.3	4.4	5.6	11.1
156	6½	.154	3.1	4.1	5.1	10.2
168	7	.143	2.9	3.8	4.8	9.5
180	7½	.134	2.7	3.6	4.4	8.9
192	8	.125	2.5	3.3	4.2	8.3
204	8½	.118	2.4	3.2	3.9	7.8
216	9	.111	2.2	3.0	3.7	7.4
228	9½	.105	2.1	2.8	3.5	7.0
240	10	.100	2.0	2.7	3.3	6.7

No. 4



---

# SENSATION

---

EASTMAN Super X Film was originally designed for rephotographing projected backgrounds. Yet because of its great speed it also won fame as the negative extraordinary for tough newsreel shots. And now it is being widely used for regular feature production, as well. Offering not only extra speed but generally improved photographic quality, Super X is unquestionably the sensation of the year in 35-millimeter raw film. Eastman Kodak Company. (J. E. Brulatour, Inc., Distributors, New York, Chicago, Hollywood.)

---

**EASTMAN *SUPER X***  
**PANCHROMATIC NEGATIVE**

# INTERNATIONAL

## CLASSIFIED ADVERTISING

Brings results—Rates 45 cents per line—minimum charge one dollar per insertion. For Rent—For Sale—Wanted—For Exchange, etc.

### FOR SALE OR RENT—CAMERAS

**FOR SALE OR RENT**—Mitchell and Bell & Howell silenced cameras, follow focus. Pan lenses, free head, corrected new aperture. Akeley, De Brie, Pathe, Universal, Prevost, Willart, De Vry, Eyemo, Sept, Leica. Motors, printers lighting equipment. Also every variety of 16 mm. and still cameras and projectors. B & H Cameras with old type shuttles silenced \$150. Everything photographic bought, sold, rented and repaired. Send for our bargain catalogue. Hollywood Camera Exchange, 1600 Cahuenga Blvd. Phone HO. 3651. Cable, Hocamex.

### FOR SALE—CAMERAS AND EQUIPMENT

**MITCHELL CAMERA**—Like new and guaranteed—silenced Academy aperture, Pan Tachar lenses, free head tripod, 1000 ft. magazines, complete \$2000.00. Hollywood Camera Exchange, 1600 No. Cahuenga Blvd., Hollywood, Calif.

**EDUCATIONAL CAMERA BLIMP** and Dolly for Mitchell Camera follow focus device, geared free head, three wheels, pneumatic tires, cost \$1250.00, special \$500.00. Hollywood Camera Exchange, 1600 Cahuenga Boulevard, Hollywood, Calif. Cable HOCAMEX.

**REAL BARGAINS** in 16 and 35 mm. movie equipment and still cameras. Newest types cameras and projectors in all popular makes. Save money on film, lights, lenses and all essential accessories. Our 36 years of experience stands back of every sale. Before you buy, send for our new bargain booklet. Burke & James, Inc., 223 W. Madison St., Chicago.

**NEW TYPE SUPER PARVO**. DeBRIE ultra silent with built-in motor, automatic dissolve, pilot pins, anti-buckling device. Four 1000 foot magazines, DeBrie friction tripod, finder, all accessories. Latest type equipment like new. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**230 DEGREE SHUTTER** Akeley Camera, X134, special focus on film attachment. 2", 4", 6", 12" lenses. Four 200 foot magazines, Akeley tripod, cases. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**SILENCED BELL & HOWELL** with check pawl shuttle 40 - 50 - 75 mm. F. 2.7 lenses mounted, two 1000 foot magazines, tripod, finder and sunshade. Rebuilt like new. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**SILENCED BELL & HOWELL** with new Fearless Movement, 40 - 50 - 75 mm. F. 2.7 lenses mounted. Two 1000 foot magazines, tripod, finder and sunshade. Perfect condition. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**MITCHELL CAMERA**; Mitchell & B. & H. Magazines; Mitchell Tripods; Cooke Lenses—mounted and unmounted; Duplex Printer; Magazine and Accessory Cases; and other miscellaneous equipment. Ed Estabrook, 430 No. Flores St., Hollywood. OR. 5003.

**BELL & HOWELL** and Eyemo Cameras, Lenses, Magazines, Tripods, Moviolas, Splicers, all kinds of Sound and Laboratory equipment. Eastman and Dupont spliced negative, tested and guaranteed, 2½¢ per foot, on daylight loading rolls, \$2.75. Inquiries invited. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood.

**FOR SALE—MITCHELL CAMERA**. 5—400 ft. magazines, 3 Astro F2.3 lenses, regular tripod, 2 cases, sunshade, all built in features. Bargain. Write for particulars. Irving Browning, 110 West 40th St., N. Y. City.

16 mm. & 35 mm. **LABORATORY**, Sound recording Services, Reduction Printing, Complete Portable Sound Camera Equipment, Motion Pictures Made to Order. Two 35 mm. DeVry Portable Sound Projectors outfit complete like new, \$650. DUplex Film Polishing Machine, cost \$750, practically new, \$250. Quartz Recording Units DUHEM Motion Picture Co., 135 Hayes St., San Francisco, Calif.

**FOR SALE—MITCHELL CAMERA**—silenced—4 Astro F2.3 lenses. Friction head tripod. 2—1000 and 2—400 ft. magazines, 3 cases, sunshade and filter holder, Bi-pak adaptation. Follow focus all built in features. A1 condition. Irving Browning, 110 West 40th St., N. Y. City

**GENUINE BELL & HOWELL** 1000 foot magazines in excellent condition \$50.00 each. Four hundred foot magazines \$25.00 each. Four hundred foot Mitchell magazines \$25.00 each. Cases for above \$10.00 each. Hollywood Camera Exchange, 1600 Cahuenga Boulevard, Hollywood, Calif. Cable HOCAMEX.

### FOR SALE—SOUND RECORDERS AND EQUIPMENT

**LIKE NEW ARTREEVES** portable double sound recording outfit, with two microphones, Bell & Howell silenced camera, complete in every detail, a real bargain. Price \$3500.00. Recorder without camera, \$2250.00. Hollywood Camera Exchange, 1600 Cahuenga Blvd., Hollywood, California. Cable: HOCAMEX.

**SOUND MOVIOLA MODEL UC**, like new, \$450.00. Moviola Silent Viewing Machine, Model C, with variable speeds, \$125.00. Hollywood Camera Exchange, 1600 Cahuenga Blvd., Hollywood, California.

**ART REEVES**, latest model 1935, double system sound recording installation, factory guaranteed, Automatic Speed Control Motor, Twin Fidelity Optical Unit, Bomb microphone, the only genuine, modern, workable ArtReeves equipment for sale in Hollywood outside factory. Price, complete in every detail, \$2,400. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

### FOR SALE—MISCELLANEOUS EQUIPMENT

**COMBINATION TITLE BOARD** and Animation Table, with lathe bed and carriage mounted on bench. Operates in vertical or horizontal position. Can be used for optical printing, special, \$150.00. Hollywood Camera Exchange, 1600 Cahuenga Blvd., Hollywood, California.

**VERY POWERFUL FLOODLIGHTS** of new design. Will burn through a 1000 W. Rifle with Cable—\$5.00. With 12 foot collapsible Stand—\$20.00. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

### CAMERA REPAIRING

**BELL & HOWELL** cameras with old type shuttles silenced, \$150. Hollywood Motion Picture Equipment Co., 645 No. Martel Ave., Hollywood.

### WANTED TO BUY

**WILL PAY CASH FOR**: Bell & Howell, Mitchell, Akeley or DeBrie Cameras, lenses, motors, parts and accessories. Motion Picture Camera Supply, Inc., 723 7th Ave., New York. New York.

**WILL PAY CASH FOR**: Bell & Howell, Mitchell, Akeley or DeBrie Cameras, lenses, motors, parts and accessories. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City, New York.

**MOTION PICTURE**—Still Picture—Laboratory and Cutting Room Equipment—Lenses—Finders—Tripods. Highest prices paid. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood, Calif.

**AT ONCE**. Silenced Mitchell and Bell & Howell Cameras, B & H high speed movement. Cinemotors and accessories. Lighting equipment. Must be in good condition and practical for studio use. Send complete description and lowest price to G. H., care International Photographer.

### POSITION WANTED

**DO YOU WANT A CAMERAMAN** who is an expert on studio production; or an expedition cameraman who knows every corner of the world; or a cameraman who thoroughly understands the making of industrial pictures; or an expert newsreel photographer; or an expert color cameraman? A limited number of cameramen, backed by years of experience, are available. Write stating your requirements and we shall be glad to assist you in choosing the kind of cameraman you want. INTERNATIONAL PHOTOGRAPHER, 1605 North Cahuenga Ave., Hollywood.

**PORTER**—Reliable and trustworthy. Three years experience in camera shop. Ambitious and industrious. Best references. Clarence G. Session, c/o The Camera Shop, Fort Worth, Texas.

### MISCELLANEOUS

### THE INTERNATIONAL PROJECTIONIST

**THE INTERNATIONAL PROJECTIONIST**, a monthly magazine published in the interests of the projectionist. Interesting, instructive. Yearly subscription U. S. and possessions, \$2; foreign countries, \$2.50. James J. Finn Publishing Corp., 1 West 47th St., New York.

**BUYERS READ** these classified advertisements as you are now doing. If you have something for sale or exchange—advertise it in these columns. **THE INTERNATIONAL PHOTOGRAPHER**, 1605 No. Cahuenga Ave., Hollywood.

**COMPLETE COURSE IN FLYING**—If interested in aviation, see Roy Klaffki, 1605 North Cahuenga Ave., Hollywood.

**WANTED**—To know of the whereabouts of motion picture relics, documents, or equipment of a historical nature for Museum purposes. Write Earl Theisen, care of International Photographer, 1605 Cahuenga Ave., Hollywood.

**THE NEW YORK PUBLIC LIBRARY**, Office of the Director, New York City, would like to procure the following old issues of **INTERNATIONAL PHOTOGRAPHERS**—all of 1929; January to October of 1930; and November and December for 1931. It will be appreciated if anyone having these numbers will communicate with us or with R. J. Lingel of the New York Public Library.

### FRED WESTERBERG'S GREAT LITTLE BOOK

The Cinematographer's Book of Tables  
is on sale throughout the world.

At any dealer—\$1.00.

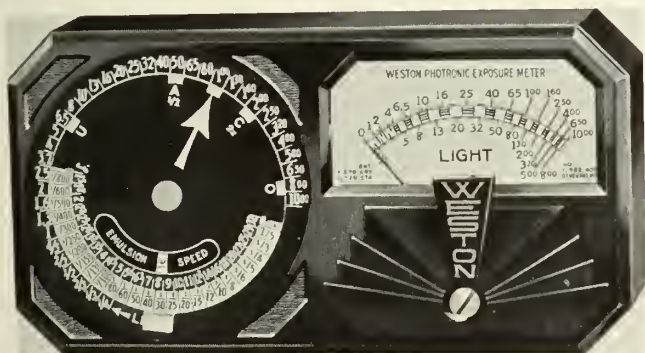


## MINIATURE CAMERA PHOTOGRAPHY

(Continued from Page 11)

probably be used for a few more rolls of film before being discarded.

**Film Speeds.** Some photographers may have a film speed table for some time, and when comparing it with a table of more recent issue find that in the latter panchromatic films are given a lower speed rating in artificial (Mazda) light than in daylight, whereas in the older table the listing is just the reverse—the pan film is given a higher speed rating in artificial (Mazda) light than in daylight. The older type of tables refer principally to visual exposure meters. Despite the fact that panchromatic films are sensitive to red, and Mazda light contains a comparatively large amount of this color, these films are still generally more sensitive to blue light. Daylight is rich in blue and low in red, therefore for equal light intensities panchromatic films are faster in daylight than in Mazda light. In general under Mazda light panchromatic films are rated 3 degree Scheiner less than under daylight; orthochromatic films are rated 4 degree Scheiner less.



### WESTON ANNOUNCES NEW EXPOSURE METER OF HIGH LIGHT SENSITIVITY

A new photo-electric exposure meter in which sensitivity to light has been increased more than three times over previous models has just been announced by the Western Electrical Instrument Corporation, Newark, N. J. It will be on the market within the next few weeks, according to present plans, and will be sold at a lower price.

The new meter extends the determination of accurate exposure settings independent of eye-judgment to the lower brightness levels commonly encountered in photographing interiors, in home photography under artificial light, and in candid camera work. The widened scope of photographic possibilities resulting from the use of super-sensitive film and high-speed lenses, using such settings as  $F/2$  and  $1/10$  second, is matched by the light-sensitivity of the new instrument. However, it is said to be more compact and more simple to operate than those previously available.

A unique feature of the meter is the redesigned light-value indicator, which accommodates on a single scale a range of brightness values in which the maximum is 4000 times the minimum. This is accomplished without sacrifice of legibility by spacing out the divisions at the lower end of the scale where exposure determination is most critical. The movement of the needle over the scale is of sufficient magnitude so that it need not be held close to the eye.

Universal application of the meter to all types of still and motion picture cameras is provided by means of an open-face reference dial including aperture settings from  $F/1.5$  to  $F/32$ , shutter speeds from  $1/1000$  second to 100 seconds, and a range of film speeds from 1 to 64 (Weston rating). Simplified arrangement of the new dial gives a more rapid and convenient indication of "normal" exposure. However, a complete indication of the film-density range available for any particular photograph is also shown at a glance, so that the photographer who wishes to depart from "normal exposure" to meet exceptional light conditions or to distort tone values for artistic effect has all the information required.

Light entering the meter is restricted to that within the usual lens angle by means of a new type of cell window of glass in the form of multiple lenses, a method which transmits a considerably greater proportion of the light than is possible with the

## A DAY AT HOME

(Continued from Page 28)

could take my camera out quickly in order to make record photographs.

Fortunately, there were no nightmares, because this day at home with my Leica had been truly enjoyable and proved to me that I should use my camera much more often for recording the everyday life of my family. There is a great deal of material at hand in the home itself for days and days of photography.

Throughout the year and every year, we should get as many of those home pictures as possible, for besides the joy of photographing them, the pictures often have great interest as family records. With a miniature camera, we can afford to be generous in our records. On rainy days, in years to come, we shall be thankful that we took the time to photograph often our homes and our families and friends.

baffles previously standard for this purpose.

The photo-electric cell used in the new meter is of the same "dry plate" type first adapted to the photographic exposure problem by the Weston organization. The increased sensitivity of the instrument has been obtained without sacrifice of permanent electrical characteristics, according to the manufacturers, and the reaction of the cell to light of various wave lengths is such that exposure data for color photography is accurately indicated.

The Motion Picture Relief Fund of Hollywood is one of the best administered organizations of its kind in America and the cameramen are glad to attest to this fact.

## ROLLEIFLEX ROLLEICORD



The cinematographer who requires a still camera for work on location and title backgrounds finds that Rolleiflex and Rolleicord Cameras perform another function as well. They will reflect with mirror-like fidelity the pictorial possibilities inherent in your subject or scene. . . . The separate focusing finder camera built into these instruments provides you with a sharp and graphic visualization of the ultimate picture which the precise and synchronized taking mechanism will convey to your film. Truly, Rolleiflex is the Camera that THINKS FOR YOU.

Supplied also with cine film attachment.

Literature on Request.

FREE TRIAL GLADLY GRANTED

### Burleigh Brooks

127 West 42nd Street, New York

Please mention The International Photographer when corresponding with advertisers.



# CINEMA CARONI

By ROBERT TOBEY



(With sauce for those who like it.)

## HOLLYWOOD HONEYMOON

(A novel novel of a thousand and one nights in a daze.)

### What has gone before:

Well, a lot of water has gone under the bridge, for one thing; and for another,

**Lili Liverblossom**, star of *Flamboyant Films, Ltd.*, is trying to rescue her press-agent,

**Perriwether Murgle**, from the clutches of a Bald Eagle named

**Willy Nilly**. The Eagle has carried Perri off across a desert near Hollywood. In the last installment the Eagle set Perri down on a hillock to rest awhile, and they both took a nip out of Perri's bottle of hair-restorer. The Eagle takes a good long swig from the bottle, and we carry on from there. So does the Eagle.

### Chapter X

#### TURN ABOUT IS FAIR PLAY

Willy Nilly wasn't used to bottled refreshments, and right away his drinks began to go to his head. From there they went to his claws... No, kiddies, that has nothing to do with Santa.

It wasn't long before Willy Nilly was lurching around like a drunken sailor; or he would have been, if he'd only had his bell-bottom pants on.

Suddenly Willy set Perri's bottle down on the sand. It was practically empty by now anyway.

"I must be getting home," he said. "My li'l wife'll be waiting for me. I really mess be gutting... I guss be metting... I huss be goating mam—aw, you fird me the hearst time," he cried.

The Eagle squared himself and ran along the top of the hillock. He flapped his wings once or twice, got a few inches off the ground, then did a wing-over and landed keel up, like an airplane hitting soft sand on the takeoff.

Willy got to his feet, walked a few steps, and then sat down on the sand and cried.

"My li'l wife is waiting f'r me," he wailed. "Woll I do now? I'll never be able to fly home in this condish—hic—in this condish—his—in this state. An' my li'l wife will be furious. Jus' furious," he finished, his voice breaking at the thought of his little wife all alone at home. Furious.

"It's just as well," said Perri. "Your tongue is pretty thick. Your wife wouldn't understand."

"Who' you mean," said the Eagle, lurching indignantly. "My tongue is not thick." He pulled out a ruler and stuck out his tongue. "See—iss jush normal," he said blearily. "I want to go home," he cried.

Perri suddenly felt sorry for Willy Nilly, for this Eagle who had never been drunk before. He walked over and stood beside him.

"I'll help you get home to your wife, Willy," Perri said. "Grab hold on me and hang on tight."

The Eagle grabbed Murgle by the coat-tails, and with a terrible screech, Perri flapped his arms and flew off across the desert with the Eagle dragging behind.

(It's really wonderful what a bottle of hair-restorer will do to an Eagle at times. If you want to know more, pick up the bottle—er, magazine—next month and see what happens.)

The young Ohio clergyman who came out to Hollywood with the notion of converting Clark Gable to evangelism, has fortunately returned to his home town of Bloomingdale. The young demagogue, whose name we will not bother to mention since his mission presumably was merely a play for publicity, had to return without even seeing Mr. Gable. How sad.

According to news reports, Mr. Gable has reserved comment on the affair. Probably just as well. Freedom of the press can be carried too far.

But, on the other hand, consider the countless women who would be happy, nay eager, to have Gable guide them to heaven.

There's a picture bride among the movie stars. Dolores del Rio—now don't anticipate me—has a

beautiful white pit bull, and of choice pedigree, named Michael. Dolores was not content with the ladies of high degree available in this country for Michael's courtship, so she selected a mate for him from pictures sent from famous kennels in England. And so the picture bride came all the way across the Atlantic to meet Michael. Her name should have awed an ordinary dog, for the bride was "Champion Faultless of Blighty." But Michael does all right himself, for he is "Michael of Kapurthala."

From a current theatre marquee:

LADIES LOVE DANGER  
THE NITWITS

And so, to answer with another picture title:

LET 'EM HAVE IT

### KNEECAP REVIEWS

(No space left on my thumb-nails)

"BECY SHARP." If you don't read too many rave reviews about this, you may easily enjoy the picture. Most of the critics climbed right up on the old watering cart and let 'er go as they passed "Becky Sharp." Probably they wanted to make sure they were secure in the role of clairvoyant in case the production starts a new cycle of color films.

I don't think it will. Technicolor's new three-color process is a great technical achievement, and an obvious improvement over the old two-color method, but natural color is yet a long way off. The new process is still capable of scenes that show an over-all predominant color; or, in other words, are "off balance." Other technical flaws are still apparent.

Miriam Hopkins was amazingly real as the conscienceless, scheming beauty of the title role. Alan Mowbray, one of my favorite actors, seemed to have none of the old spark, but gave a rather wooden performance. Frances Dee's very real beauty and vitality seemed somehow buried in this film.

It really isn't as bad as all this. In fact it is well worth seeing. Maybe it will start a new cycle of color films. Who knows?

"NO MORE LADIES." This is a delightful piece of entertainment. While the plot is frothy and implausible, it makes no real pretense at being otherwise; and the dialogue bubbles merrily along in enhancement of the gay charm of Robert Montgomery and Joan Crawford. I was particularly impressed with the work of Franchot Tone, by whose work I have not heretofore been particularly impressed.

Latest note from Sue City (Hollywood to you): Echoes of the racing season at Santa Anita race track are still being heard. The wife of a studio technician—Mrs. Florence Losey, and a swell moniker as you shall see—is suing the Los Angeles Turf Club for \$30,000.00. It seems she was about to bet ten berries on Azucar in the big Handicap, when a heavy odds board fell on her. She didn't bet.

Evidently Mrs. Losey can take a hint. She wants heavy odds in another way.

And if she wins the suit she'll get better odds than she'll ever get on Azucar. Or any other horse.

It's a shame for an actor with a priceless sense of comedy like Benny Rubin's to do anything but act; but Benny would rather do other things, and every horse to his own sweet grass. At

present Benny is writing stories for Columbia, and the breezes whisper there are bigger things in the wind for him, but that's another story.

Benny must have his laughs. So he appointed himself a sort of unofficial Special Supervisor for the production "She Married Her Boss," starring Claudette Colbert and directed by Gregory La Cava. His best to date was writing a note to Claudette telling her how marvelous she was, and how terrible it was she didn't have a decent director for the picture; then writing a note to La Cava praising his splendid direction, telling him what a fine story he had, and commiserating with him over the choice of Miss Colbert as star, panning her acting as atrocious; and then switching envelopes on the two notes!

### POLITE SURPRISE DEPARTMENT

There is a night club singer in Hollywood by the name of Marjorie Borum. Heigh-ho.

THE MACARONI BOWL, by the Shovel Boys (they dish the dirt.) \* \* \* Glenda Farrell posed for publicity pictures with Jess Willard, the bad-minton champion, and now Glenda's so enthusiastic about the game she's going to take lessons. \* \* \* Frank McHugh bought a canvas swimming pool for his children, and now he just can't get the kids out of their bathing suits. They're in the pool every available minute. \* \* \* Earl Blackwell has a new game, "Water Bad-minton." He and Grace Durkin, Pat Ellis and Glenn Boles spend all day playing it these hot days—on account of you play it in a swimming pool. It's great stuff if you just don't get too interested in the game and forget to tread water. Incidentally this young Grace Durkin gets prettier every day, and if some studio takes an interest in her she should really go places. She bears an uncanny resemblance to Grace Darmond—remember her?—and that won't do her any harm. \* \* \*

Clara Kimball Young comes out of the past to play a part in "She Married Her Boss," Claudette Colbert's current starring vehicle. \* \* \* Claudette always brings her own lunch when she is at work in a production. But what a lunch—her own cook prepares it for her. She tops it off with babu rum cake, than which confection there is nothing more heavenly. \* \* \*

Do you remember Marguerite Clark? She was one of the beauties of the old silent days. Emoting from behind the mask of the old flour-like make-up, Marguerite was one of my secret sorrows. Now she has been appointed by Senator Huey P. "Much Too" Long to a position on the motion picture censorship board of the sparkling State of Louisiana. \* \* \*

Marguerite Clark will probably go down in history as the only censor that ever knew anything about pictures. \* \* \*

It's a wonder the Kingfish didn't appoint himself chairman of the board. He's quite a connoisseur of fiction. \* \* \*

What this country needs is a censor board that can cut out people like Huey P. Long.

Silly Sally thinks a "quickie" is a drink you take when your mother isn't looking.

### SNAPPY SIMILE FOR TODAY

Star HER in a picture? You're crazy! She's as passé as a chain letter.

Charles P. Boyle, editor of our "Out of Focus" page, and who is now associated with Paul Perry in Manila, P. I., was too busy to get Otto here in time for this issue. Now he cables that he will be with us in September. He and Paul both report that business is good.



## THE NEW POLA-SCREEN

By ROBERT TOBEY

Eastman Kodak Company's newest contribution to the photographic bag of tricks, the Pola-screen, brings the cinematographer one step nearer the goal of complete control of his chief working medium, LIGHT. Very much a novelty at present, this little "filter" can be of inestimable service when needed.

Its chief practical application at present is in the control of undesirable reflection, one of the bugaboos of motion picture photography. By a simple adjustment of this screen in front of the camera lens—the screen is a glass disk similar to the Eastman "OA" and "OB" diffusion disks) disconcerting reflected light such as glare on metallic objects and wet streets, or actual image reflections in mirrors and glass windows, can be modified or completely eliminated at the will of the cinematographer.

In addition, certain adjustments of contrast, and unusual lighting effects, can be achieved by the use of this filter.

All cinematographers should check on what this filter is able to do, even if they don't understand why it does what it does. Space in this issue does not permit a technical discussion of the polarized light problem. An amplified brief will be presented in the near future.

## ANOTHER A. C. L. BOOKLET

"Cine Travel Plans" is a new booklet by James W. Moore, A.C.L., and just as good as the best issued by the Continuity Department of that fine organization.

It is a 32-page booklet which is obtained by request only by members of the Amateur Cinema League.

The booklet selects four kinds of travel films as they might be produced on four different trips, and, the detail is worked out to a high degree. The trip studies are Bermuda, Mexico, Yellowstone and an automobile journey.

## BEAMS FROM THE PROJECTOR

Eddie Kull, who recently returned from Guatemala, where the Ashton Dearholt Expedition shot "Tarzan and the Green Goddess," holds the opinion that Central America, and especially Guatemala, will soon become a great field for motion picture production.

In that mysterious country nothing is lacking, not even active volcanoes, and a company on location is less than two days away from Hollywood and the laboratory.

Mr. Kull, in spite of great difficulties, turned in a remarkable picture and is eager to return to "The Land of the Winged Serpent." Ernie Smith collaborated with him.


Hal Mohr, Director of Cinematography, on the Warner Brothers' Max Reinhardt "A Midsummer Night's Dream," produced a brilliant picture on that assignment. It is one of the finest of Mr. Mohr's long and honorable career.

Dr. E. B. Middleton, assistant director of the research department of Dupont Film Manufacturing Company, recently visited Smith & Aller, representatives of Dupont. Mr. Middle is associate to Dr. Sease at the Parlin Laboratory of Dupont, in New Jersey.

# An Unusual Opportunity

Hollywood organization manufacturing non-competitive motion picture equipment requires additional working capital. Demand for product exceeds present production facilities. Incorporated under the laws of California.

Interested parties may obtain complete details by writing Box 777, International Photographer.



**ASTRO** TO BE USED BY  
**MITCHELL CAMERA CORPORATION**  
 665 NORTH ROBERTSON BOULEVARD  
 WEST HOLLYWOOD CALIF.

F: 1.3  
F: 2.3

Hollywood  
**MOTION PICTURE EQUIPMENT CO. LTD.**  
 645 NORTH MARTEL AVE. CABLE ADDRESS ARTREEVES  
 HOLLYWOOD, CALIFORNIA, U.S.A.

645 NORTH MARTEL AVENUE,  
LOS ANGELES, CALIFORNIA.

# *London*

## prefers MITCHELLS



*The following British studios use MITCHELL Cameras*

Associated Talking Pictures Ltd.

British & Dominion Films Ltd.

British International Pictures Ltd.

British Lion Films Ltd.

Gaumont British Picture Corporation

Gainsborough Pictures Ltd.

London Films Ltd.

Joe Rock Studios Ltd.

Stolls Picture Production Ltd.

Warner Brothers Ltd., Teddington

and others



## MITCHELL CAMERA CORPORATION

665 N. ROBERTSON BOULEVARD  
WEST HOLLYWOOD, CALIF.

Cable Address "MITCAMCO"

Phone OXford 1051

### AGENCIES

Motion Picture Camera Supply, Inc.,  
New York City, N. Y.

Claud C. Carter,  
Sydney, Australia

John H. Taylor,  
London, N. W. 1, England

D. Nagase & Co., Ltd.,  
Osaka, Japan

Bombay Radio Co., Ltd.,  
Bombay, India

Arminio Conti,  
Rome, Italy





# INTERNATIONAL PHOTOGRAPHER

HOLLYWOOD

FIFTEENTH YEAR

SEPTEMBER, 1935

VOL. 7  
No. 8



STILL BY HIGINO J. FALLORINA

Philippine Film Productions on location. Photo by Higinio J. Fallorina. Charles P. Boyle standing by camera, Eduardo De Castro, director, kneeling directly underneath; grips, prop men, actors, etc. The dwarf on the caribou is 35 years old and is a new discovery. He has never worked in pictures before, but is now under contract as a comic. The Philipinos are very fond of him and wherever he goes a crowd will follow. Mr. Boyle is a former first cameraman of Hollywood and is editor of the feature page, "Out of Focus", of this journal.

25 CENTS  
A COPY

MOTION PICTURE ARTS AND CRAFTS



# *Hot Weather Hits* .... DU PONT NEGATIVE



DU PONT FILM MANUFACTURING CORPORATION

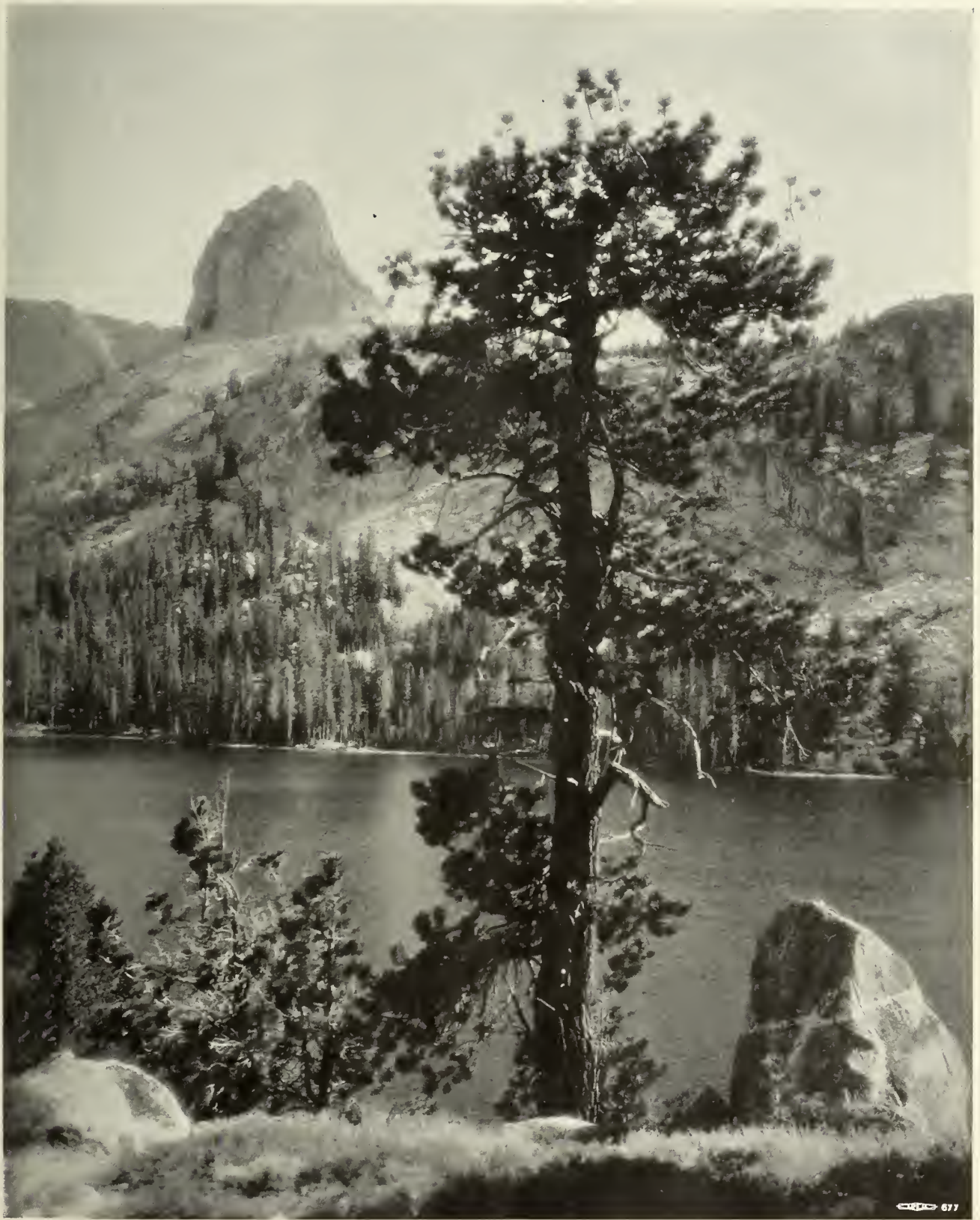
35 WEST 45TH STREET  
NEW YORK CITY  
PLANT . . . PARLIN, N. J.



SMITH & ALLER LTD.  
6656 .. SANTA MONICA BLVD.  
HOLLYWOOD, CAL.

THE  TRADE MARK HAS NEVER BEEN PLACED ON AN INFERIOR PRODUCT





Here is a pictorial tree on the shore of Lake George, in the high Sierras of California. Ray Jones caught this imposing picture in his "good box" while vacationing nearby.

# INTERNATIONAL PHOTOGRAPHER

MOTION PICTURE ARTS AND CRAFTS

Vol. 7

HOLLYWOOD, SEPTEMBER, 1935

No. 8

SILAS EDGAR SNYDER, *Editor-in-Chief*

EARL THEISEN and CHARLES FELSTEAD, *Associate Editors*

LEWIS W. PHYSIOC, FRED WESTERBERG, *Technical Editors*

HELEN BOYCE, *Business Manager*

A Monthly Publication Dedicated to the Advancement of Cinematography in All Its Branches; Professional and Amateur; Photography; Laboratory and Processing, Film Editing, Sound Recording, Projection, Pictorialists.

## CONTENTS

Front Cover Still by Higinio J. Fallorina

FRONTISPIECE <i>by Ray Jones</i>	- - - - -	1
THE DEPRESSION GIVES US A CHANCE TO THINK	- - - - -	3
<i>An Interview with Peter Mole</i>		
THE SCIENCE OF MOTION PICTURE SOUND RECORDING, CHAPTER XXI	- - - - -	4
<i>By Charles Felstead</i>		
THE SAGE OF THE SANTA MONICAS	- - - - -	6
COMPOSITE PHOTOGRAPHY (PRINTING-IN)	- - - - -	8 and 9
<i>By Robert M. Parker</i>		
MINIATURE CAMERA PHOTOGRAPHY	- - - - -	10 and 11
<i>By Augustus Wolfman</i>		
A LEICA SHOOTER VISITS THE FAIR	- - - - -	12
<i>By Hansena Frederickson</i>		
RANDOM SUGGESTIONS ON JOURNALISTIC PHOTOGRAPHY	- - - - -	12 and 15
<i>By Karl A. Barleben, Jr., F.R.P.S.</i>		
THE PIONEER CINEMATOGRAPHER, JEAN ACME LE ROY	- - - - -	16 and 17
<i>By Merritt Crawford</i>		
COMMODORE BLACKTON TAKES NEW JOB SERIOUSLY	- - - - -	18
<i>By Rex H. Lampman</i>		
THE MUDDLE IN LENS STOP MARKINGS	- - - - -	20
<i>By Fred Westerberg</i>		
EYES TOWARD HOLLYWOOD	- - - - -	22
<i>By Earl Theisen</i>		
IS THE CAMERA THE ROYAL ROAD TO DIRECTOR-HOOD?	- - - - -	24
<i>By Herbert Aller</i>		
WHAT ARE EDUCATIONAL FILMS?	- - - - -	25
<i>By P. C. Smethurst, A.R.P.S., F.A.C.I., F.R.S.A.</i>		
PHOTOGRAPHY WITH INFRA-RED	- - - - -	26 and 27
<i>Translation by H. O. Stechan</i>		
PHOTOGRAPH AND SOUND PATENTS	- - - - -	28
<i>By Robert Fulwider</i>		
CLASSIFIED	- - - - -	31
CINEMACARONI	- - - - -	32
<i>By Robert Tobey</i>		

Entered as second class matter Sept. 30, 1930, at the Post Office at Los Angeles, California, under the act of March 3, 1879.

Copyright 1935 by Local 659, I. A. T. S. E. and M. P. M. O. of the United States and Canada

Office of publication, 1605 North Cahuenga Avenue, Hollywood, California  
GLadstone 3235

James J. Finn, 1 West 47th St., New York, Eastern Representative  
McGill's, 179 and 218 Elizabeth St., Melbourne, Australian and New Zealand agents.  
Subscription Rates—United States and Canada, \$2 a year. Single copies, 25 cents.

This Magazine represents the entire personnel of photographers now engaged in professional production of motion pictures in the United States and Canada. Thus THE INTERNATIONAL PHOTOGRAPHER becomes the voice of the Entire Craft, covering a field that reaches from coast to coast across North America.

Printed in the U. S. A. at Hollywood, California



80 I.P.U.  
SERVICE ENGRAVING CO



## AUTHORS FOR OCTOBER

Lewis W. Physioc

Earl Theisen

Paul R. Harmer

Fred Westerberg

Robert M. Parker

Hansena Frederickson

Charles Felstead

Herbert Aller

Robert Tobey

Karl A. Barleben, Jr., F.R.P.S.

Augustus Wolfman

Charles P. Boyle

John Leezer

Delmar Whitson

Alvin Wyckoff

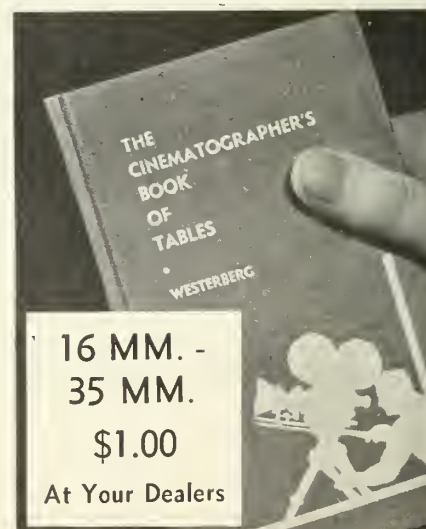
Subscribe Now!

\$200

for a year's subscription to the

INTERNATIONAL  
PHOTOGRAPHER

After September \$3.00 in Canada and  
Foreign Countries



16 MM. -  
35 MM.

\$1.00

At Your Dealers



# The Depression Gives Us a Chance To Think—And Improve!

*An Interview with PETER MOLE, of Mole-Richardson*



KEEPING the big, bad wolf away from the doors of a business house is quite an achievement of late, what with customers retrenching in every direction, and even the best spenders "getting by" on last season's purchases; but doing it while yet keeping a large staff of manufacturing and research experts virtually intact is nothing short of heroic. But that is just what Peter Mole and Elmer Richardson have done right through the worst years of the depression! So when it is learned that today there are more men at work making Mole-Richardson lamps than at any time since the "inkie" boom days of 1929-30, you begin to realize that there is more than mere Chamber-of-Commerce press-agency to the statement that times are getting better.

"There are two ways of facing a situation like the depression," Peter Mole recently remarked. "One is to fold your hands and sit back until somebody else makes times improve. The other is to take advantage of the lessened demands on your time and physical energy to analyze your work or your product so that you can improve it so much that it commands attention for itself.

"We have tried to do the latter. Up to about 1930, the industry's change to sound and incandescent lighting kept us so busy meeting the demand for the then new Inkies that there was little opportunity for carefully studying the basic problems of our work. Our lamps worked as well as anything that was then available (perhaps a little better!), and all that any of us had time to worry about was being able to make enough lamps to fill orders. Only when this pressure fell off were we able to make a careful analysis of how and where the lamps were then making fell short of meeting the requirements of the ideal lamp.

"Once we had a chance to make such a searching analysis, we were able to attack the whole problem of studio lamp design in a more scientific manner than had ever been done before. Instead of turning out a lamp that was better, we could strive to turn out one that was perfect. As a result, during the depression years, our whole range of lamps has been entirely redesigned, and many completely new types have been developed. For example, the cast type of lamp-housings grew out of a careful study of what caused the noises made by incandescent lamps as they warmed up; and when more sensitive recording methods evolved, quieter lamps were at hand to meet the new demand. In much the same way, the recently introduced 'Junior Solarspot' was the result of going back to the basic problem of lamp design; putting light where the cameraman wants it, in the type of beam best suited to his needs. This study brought forth an entirely new type of lamp based on an optical system different from anything previously used for photographic lighting, but ideally suited to the demands of modern cinematography. It is not an old lamp dressed in new clothes, but a completely new concept of a lamp, which from the start was designed to do things no other lamp had ever been able to do.

"In the same way, our research staff was kept busy developing lamps to meet the needs of specialized users. The 'Cinelite,' for example, was developed to suit the particular needs of Jerry Fairbanks' 'Popular Science' series. In making these pictures, Jerry had to have a powerful, yet supremely portable unit which could be used anywhere he might go in search of his material. The lamp, which takes a No. 4 Mogul-base Photoflood globe, consists of a paraboloid reflector, a quickly detachable socket, and a light but sturdy stand. Assembled, the unit is somewhat comparable to a studio 'Rifle'; but it may be knocked down in a few seconds—and half-a-dozen or more of them can be carried in less space than a camera and tripod.

"When Technicolor's three-color process was being developed, our organization was called into consultation upon the matter of lighting equipment. Tests showed that the arc was the most satisfactory light-source for Technicolor's purposes; and further tests also proved that existing arcs—most of which had been designed at least ten years ago—did not conform either to modern requirements, or to Technicolor's specifications. Therefore, we commenced the task of designing a completely modern series of arcs. The most urgently needed of these—and accordingly

the first to be perfected—were the broadside and overhead units for general lighting. Working closely with the engineers of the National Carbon Company, who produced an entirely new type of carbon for this lamp, we evolved a twin-arc broadside which gave 400% more light than its predecessors, plus quieter, steadier burning and more even distribution of illumination. The overhead 'scoops' are these same units in a slightly different mounting. Equally improved spotlighting units are being perfected to complete the series.

"Another thing for which we can thank the depression is the fact that we, in common with many other makers (and users) of cinemachinery, have been made more conscious of the fact that Hollywood is by no means the only place where motion pictures are made. A few years ago, while we might have had a hazy idea that there were studios in England, France, Germany, Russia, and other countries, most of us felt pretty sure that Hollywood was the only real production center. Today, we know that our neighbors, too, can make good pictures—and that it is to our advantage to help them do so.

"The story of England's rise to international importance in film production is too familiar to need repetition; besides, it is a story which is far from finished even yet. But too few of us here have given a thought to what is happening in such regions as India and Japan. The Nipponese, for example, have built up an industry which produces more feature-length films than France and Italy combined, and have five thriving, modernly-equipped major studios, in addition to a number of independents.

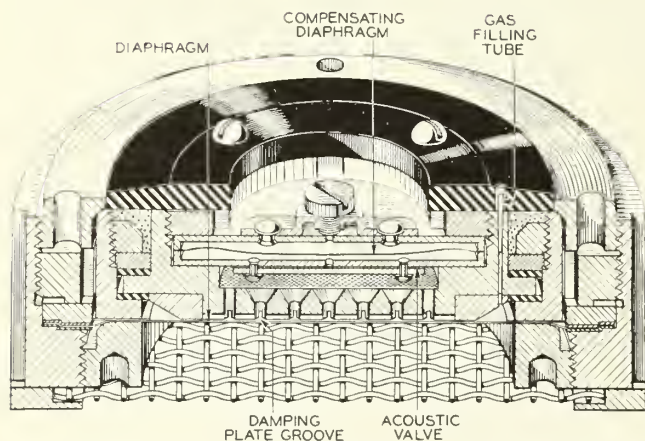
"The rise of the film industry in India is one of the most astonishing events of our time. Six or seven years ago, the Indian film industry comprised a mere handful of scattered, very independent producers—most of whom would make a single production and expire. Technically, they were less advanced than we were back in 1915! Today, there are 107 producing units in India, including several really 'major' firms, operating from modernly equipped studios, making sound-films for India's 350,000,000 people. They import an average of \$2,016,000 worth of film and equipment per year—75% of it from the United States. And this growing industry is almost entirely in the hands of the native Indians, from financing down through management, production, distribution and exhibition. What is more, the Indian technicians are almost entirely self-taught; what they have learned, they have learned without help from any of the older film-centers; but they are eagerly reaching out to us here in Hollywood for both instruction and equipment.

"A few years ago, it was a rare thing, indeed, to encounter a technician from a foreign film-concern here in Hollywood; this summer, within the period of a few weeks, I have been visited by technical experts from Japan, India, Russia, the Philippines, and several European studios. Such international cooperation, if wisely fostered, cannot fail to benefit all concerned.

"Today is big with promise for all of us in the technical branches of the films. Abroad, the cry of every production center is 'Send us American technicians and equipment!' The list of the truly outstanding cameramen and other technical experts who have gone from noteworthy careers in Hollywood to greater triumphs abroad is steadily growing in numbers and distinction. At home, we have every evidence that recovery in the film industry is becoming an accomplished fact. During the last few weeks, production and employment have reached higher peaks than we have known for many years. In our own case, if I may be allowed to cite it, if we consider our 1929-30 average as 100%, our employment rolls now stand somewhere around 115%—and our development and research activities far higher. None of us can foretell the future; but if in periods such as the years just past, we make up for lessened physical activity by increased mental activity, we may not only come happily out of the depression, but reach the conclusion that, in spite of its tragic phases, it will be of lasting benefit to all of us in that it has taught us to look more closely into what we do, and to strive consciously for improvement in every way. Lean years may slacken our opportunities to work—but they also give us a chance to think more deeply, and to lay a foundation for real advancement."

# The Science of Motion Picture Sound Recording

## Chapter Number XXI



Cross-section view of a condenser transmitter. Courtesy Bell Telephone Laboratories.

**T**HIS chapter of the series continues the discussion of the condenser transmitter from the point at which it was suspended in Chapter XX, published in the July issue. It is suggested that the reader refer to the latter part of that article so that its connection with the material here presented will be apparent.

Since the actual capacity change that takes place in a condenser transmitter when it is subjected to sound-pressure waves is so very small, the variation in the charging current is minute and the voltage drop variation produced by it across the high series resistance is likewise extremely small. Because this voltage change across the resistance is too feeble to be of any use until it has been considerably increased, it is applied to the grid circuit of a vacuum tube amplifier through a coupling condenser, which is marked C in the accompanying illustration (Figure 1). Sometimes a tube of the high- $\mu$  type is employed in this amplifier circuit; but more often small tubes of the "peanut" type are employed.

The grid leak, R<sub>g1</sub>, permits a fixed negative bias voltage to be applied to the grid. In Figure 1 this voltage is shown supplied by a small "C" battery in series with the grid leak; but in the normal condenser transmitter amplifier circuit (see Figure 3) this bias voltage is obtained from the drop in voltage across a fixed resistance (R<sub>f</sub>) in the filament circuit to simplify the equipment. A vacuum tube will not function properly as a distortionless amplifier (Class A) unless the grid is maintained at a definite negative potential with respect to the filament.

### Amplification of the Speech Current

The changing voltage drop across the resistor, R, is fed through the coupling condenser, C, to the grid circuit of the tube, creating an alternating voltage between the grid and filament of the tube. This changing voltage on the grid alternately adds to and subtracts from the value of the fixed negative potential applied to the grid through the grid leak by the negative bias voltage, and so acts to produce a corresponding variation in plate current.

If still greater speech current is required, more amplification can be employed. In such case, the changing plate current in the first amplifier tube is caused to pass through a resistance, R<sub>p</sub>, introduced in the plate circuit of that tube, as may be seen in Figure 2. The IR (voltage) drop across this plate resistance is supplied to the grid circuit of the second amplifier tube

through another coupling condenser and grid leak combination, and the same action takes place that occurred in the grid circuit of the first tube. The current variation in the plate circuit of this second tube is an amplified but faithful copy of the current variation in the plate circuit of the first tube. In the case of a three-stage condenser transmitter amplifier, a third tube is coupled to this second tube in the same manner as shown, and the output speech current is correspondingly greater.

Regardless of whether one, two, or three stages of amplification are used in the microphone amplifier, the current in the plate circuit of the last tube in the amplifier is supplied to the primary of an output transformer which has an output impedance that is adjustable to match a fifty or 200 ohm transmission line. The actual circuits of single-stage and double-stage condenser microphones are shown in Figures 3 and 4.

Where several microphones are used in the same circuit, as in motion picture sound recording work, it is important that the secondary windings of the output transformers all be connected to the transmission line in the same manner so that the electrical outputs of the microphones will be in phase. If two microphones that were suspended close together should receive the same amount of sound from a source at the same instant and the secondary connections of one of their output transformers was reversed, the electrical outputs of the two microphones would cancel each other because they would be phases in opposition and no energy would be supplied to the succeeding equipment.

### The Coupling Circuit

The current change in the condenser transmitter circuit is very minute, as has been explained, and for that reason the coupling resistor, R, must have a very high resistance so that the IR (current multiplied by resistance) drop in it will be of sufficient magnitude to be of use. This resistor is an extremely important part of the transmitter circuit; and it is necessary that its resistance, which usually is in the order of fifteen to fifty million ohms (megohms), be absolutely constant in value. It is evident that any change in the value of this resistance would have identically the same effect on the IR drop that a variation in the current flowing through the resistance would have. For this reason the resistor chosen must have a very low thermal agitation constant.

The coupling resistor employed by the Western Electric Company is made of a small glass tube filled with a special chemical solution known as xylol (a mixture of xylene and alcohol and pronounced "zylol"); and the glass tube has metal electrodes sealed to its ends which make electrical contact with the solution. For reasons that will be taken up later, the same sort of resistor is used as the grid leak (R<sub>g1</sub>) in the first stage of the transmitter amplifier.

This resistor is impregnated, as is the whole amplifier, in a sealing compound that helps to exclude dampness; for even the slight moisture from the air that would collect on the outside of the glass tube if it were not protected would form a conducting path that would change the resistance enough (through the variable leakage that would result) to cause an annoying noise in the output current of the microphone amplifier.

### Short Transmitter Leads Necessary

Due to the high impedance of the condenser transmitter and its associated input circuit to voice-frequency currents and the minuteness of the current variations produced by changes in the transmitter capacity, long leads may not be employed to connect the transmitter to the coupling resistor. In the first place, the current loss in long leads would be too great; and secondly, because of the high impedance of the circuit, these leads would be very susceptible to electromagnetic and electrostatic induction from adjacent wiring.



Furthermore, the leads that are used between the transmitter head and its amplifier must have almost no capacity between the wires, because any capacity that existed between them would in effect be shunted across the capacity of the condenser transmitter. That shunt capacity would reduce the proportionate effect of the capacity change caused by a sound wave vibrating the transmitter diaphragm. For the above reasons, the cord used is of special construction and is only about five inches long.

In motion picture work it is sometimes desirable to make the microphone as small as possible so that it may be hidden in places where a regular microphone assembly would be in plain view of the camera. In such cases, the transmitter head is sometimes removed from the amplifier and an extension cord that is heavily shielded by copper braid connected between them. That permits the head to be hidden in the set while the amplifier is located at a little distance from it out of range of the camera lens.

This use of an extension cord on the head is not good practice and should be avoided unless there is no other possible alternative. Under no circumstances should this extension cord be over twelve feet long; and the electrical shielding about the cord must be carefully grounded to both the transmitter and amplifier. It is well to have an extra wire within the cord to carry the ground connection and supplement the shielding braid, because the braid is easily broken.

When an extension head is thus used with the CTA, it is very important that the extension cord is not touched or moved during a take, because any movement of the cord would be likely to change the electrostatic capacity existing between the wires of the cord and produce noise in the system. This is the lowest level portion of the recording circuit; and any disturbance at this point naturally will be enormously amplified. The addition of even a short extension cord to the transmitter will often reduce the response of a condenser microphone by as much as six decibels.

#### Parallel Leakage Paths

From an examination of Figure 1, it should become evident that there are really three circuits in parallel in the grid circuit of the first amplifier tube. This is more clearly shown by the schematic diagram given in Figure 5. In this schematic, the resistance  $R_{gf}$  represents the grid to filament resistance of the tube base and socket of this first tube; and  $R_c$  represents the internal resistance of the coupling condenser  $C$ .

Now if the resistance  $R_{gf}$  and  $R_c$ , which are in series, are too low in value, they will form a low impedance path for the speech current, or charging current, in the condenser transmitter circuit; and instead of passing through the resistance  $R$ ,

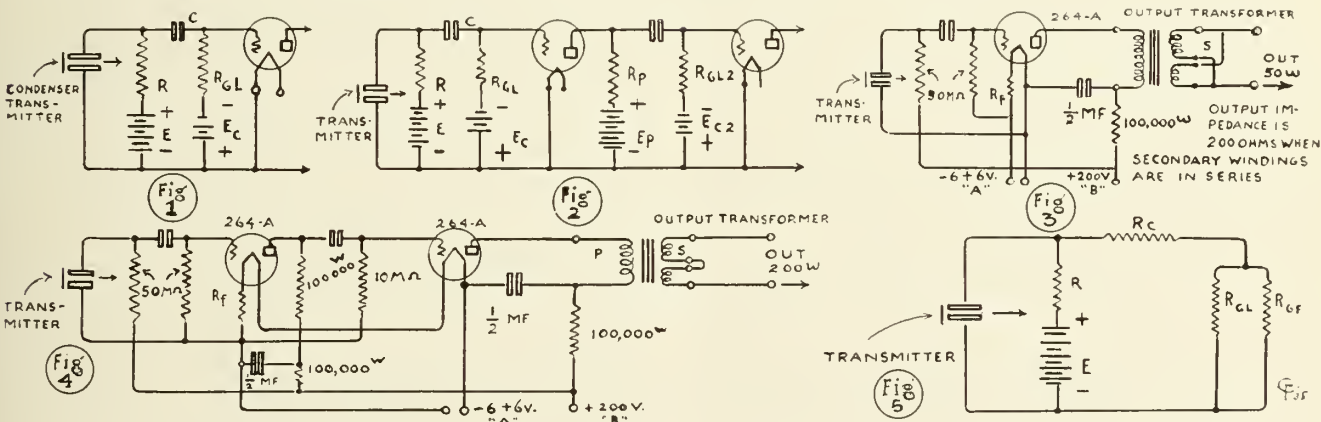


Fig. 1. Schematic diagram of condenser transmitter and grid circuit of amplifier tube. Fig. 2. Schematic diagram of condenser transmitter and two stages of amplification. Fig. 3. Circuit of single stage condenser microphone. Fig. 4. Circuit of a two-stage condenser microphone. Fig. 5. Schematic diagram of grid circuit of single stage condenser microphone.

BY  
CHARLES  
FELSTEAD  
EDITOR



the current will take the lower impedance path through  $R_{gf}$  and  $R_c$ . This would cause a considerable loss in speech current, besides producing noise in the output current of the microphone due to fluctuations in the resistance of this leakage path.

To prevent such an occurrence, the coupling condenser,  $C$ , is very carefully constructed with mica for the dielectric so that its impedance will be extremely high at audio frequencies. The socket of the tube is likewise constructed of insulating material of the highest quality to keep the grid to filament resistance as great as possible. The resistance of the material used in the tube base is normally high enough. Thus these two series resistances are designed to be in the order of many hundreds of megohms; and so the coupling resistor,  $R$ , offers a much lower impedance path for the speech current in the transmitter circuit.

It is for the same reason that the resistance of the grid leak,  $R_{gl}$ , is made so high. A resistance of two megohms would be sufficient in so far as the functioning of the tube is concerned; but if a resistor of that value were used and the insulation resistance of the coupling condenser,  $C$ , happened to be low, the two in series would offer a path for the speech current that would be of much lower impedance than the path through  $R$ , and the result would be a loss of signal strength and noisy operation.

The chapter next month will discuss microphone batteries and cables, and troubles that are encountered in the operation of carbon and condenser microphones.

Now ONLY \$2.00

The International Photographer

Is the Best Buy of Its Kind at This Price

## The Sage of the Santa Moniras



We like to think of Will Rogers as "The Friendly Indian," and here we see him between scenes, on location, entertaining a bunch of admiring village boys by skillful manipulation of his ropes. Notice how completely he has won his rustic audience.

Here is a man so great that he could say in his heart and to the whole world: "I never knew a man that I disliked."

Cliff Maupin's facile camera caught this delightful shot just as Will shifted his chewing gum.

Vaya usted con Dios.

### CHIEF ENGINEER OF THE FEDERAL COMMUNICATIONS COMMISSION INSPECTS DON LEE TELEVISION

Prior to starting on an inspection tour of the four Pacific Coast district offices of the Federal Communications Commission, Dr. C. B. Jolliffe, Chief Engineer of the Commission, expressed a desire to inspect the television operations of the Don Lee Broadcasting System in Los Angeles.

Arrangements were made by Harry R. Lubcke, Director of Television of the System, and before leaving for San Francisco on the second leg of his trip, Dr. Jolliffe was shown all phases of the development. He was accompanied by Mr. Bernard H. Linden, Supervisor for the Los Angeles district, and Mr. V. Ford Greaves, Supervisor for the San Francisco district.

Dr. Jolliffe expressed surprise at the completeness of the Don Lee television activities. Questioned directly in regard to the future of television, in the determination of which he plays no small part, Dr. Jolliffe declined to hazard a guess as to its imminence, declaring: "I refuse to say that it is 'just around the corner'. Although it is technically reaching perfection, there are many commercial problems and ones of standardization which must be satisfactorily solved before television receivers will be widely used by the public." However, Dr. Jolliffe did express the

belief that "once commercial television becomes a reality, mass production of television receivers will make available an instrument only a little more expensive than the average 'sound' receiver on the market today."

Dr. Jolliffe stressed the point that television must be developed to allow all receivers offered for public sale to be easily adjustable to receive all television transmissions within its range. This calls for a degree of standardization of the transmissions.

It was brought out by Director Lubcke that certain types of scanning would be unsatisfactory in the Los Angeles area because of the use of both 50 and 60 cycle electric current in the homes. Although 60 cycle current is scheduled to come into greater use, according to the plans of the power companies, all of Southern California not within the city limits of Los Angeles is to remain on 50 cycle current. Interlaced scanning and mechanical or disk receivers are seriously affected. It was stated that the Don Lee activities are going forward in recognition of these conditions, and that a standard has been secretly in operation for the past few months, which is workable on any power system, or even a battery, as a source of power.

Quite recently Will Rogers stood under the glorious trees in Plummer Park and urged the venerable Senor Eugene to keep the property intact, as the last of the Old West. How fitting that this hallowed spot be Hollywood's memorial to our Will!

Consider a sprawling adobe under hand-made tile, a stable and a corral,—a museum of Western things, a gallery of Western art, a perpetual shrine where pioneers may gather and live again their golden past.

Let's prevail upon Postmaster General Farley to print a Will Rogers one-cent stamp, which we may buy in carload lots and contribute to this gorgeous end.

— JOHN CORYDON HILL.



---

# A REAL FIND

---

LITERALLY, the news about Eastman Super X spread like wildfire. Never has a film "caught on" faster, or been more widely adopted in so short a time. The reason: Super X is a real find for the cinema world. Introducing new standards of speed and photographic quality, coupled with rare versatility, it represents a major advance in raw-film research ... a true contribution to the art of the motion picture. Eastman Kodak Co., Rochester, N.Y. (J. E. Brulatour, Inc., Distributors, New York, Chicago, Hollywood.)

---

**EASTMAN SUPER X**  
**PANCHROMATIC NEGATIVE**



# Composite Photography

By ROBERT M. PARKER

(Instructor of Photography at Polytechnic Evening High School, Los Angeles)

## (PRINTING-IN)



VERY photographer learns early the limitations of a single picture. It does not serve his purpose, tell his story, sell his idea. It is incomplete and inadequate, and, as an isolated unit, it has little significance.

In motion pictures the relating and interrelating of these isolated units so that they become logical, smooth, plausible parts of a unified rhythmic whole is known as MONTAGE, a "forming principle" that we may see at work in such a sequence as that in which Jean Val Jean drives the two white horses at breakneck speed through the night (*Les Miserables*). Certainly no cameraman could include Val Jean and his pursuers in the same frame. Therefore cut-backs are utilized; the victim, the pursuers, the victim again, a series of quick-moving-shots, logical, inexorable bits which give significance to each other and to the whole.

Obviously, still photography cannot make use of the cut-back. But it does have at its service, a practice known in its simplest form as "printing in." This practice which produces the type of photography called composite, is of inestimable value in the advertising field; for here, the limitations of the single picture are most apparent. A story must be told, an idea must be presented, and one picture may not suffice. It is necessary for the advertiser's purpose that additional images be added, and it is the photographer's problem to print these in.

Perhaps the most effective method of presenting "printing in" is to describe from inception to completion, a job in which this process played an important part. It is not to be supposed that such a description will cover the subject completely. These are by no means the last, but rather the most elementary words upon a matter which can be dealt with in a variety of ways, and approached from a number of angles.

To describe then, a simple problem of printing in: The writer was approached by a drug syndicate and asked to make up a photograph which would effectively advertise a certain foot balm, reputed to cure athletes' foot. It was his problem both to originate and express the idea. After having considered a number of different methods of approach, it occurred to him that there is likely no story in the world in which feet play a more important part than they do in the story of Cinderella, familiar to all through the medium of the illustrated fairy tale and the motion picture. The Cinderella motif then, was decided upon, and the idea amplified in the fashion suggested by the following illustrations and outlines:

Mother reading to young daughter	Using a universal idea to attract attention	Creating a desire in everyone to have feet
Print-in of Glass Slipper		
A picture of the product	Information to be conveyed	
Advertising Copy		

### Procedure:

1. Make negative of mother and daughter. (Fig. I.)
2. Make negative of glass slipper on pillow. (Fig. II.)
3. Put negatives together and make composite print. (Fig. III.)
4. Make negative of product. (Fig. IV.)
5. Make print of product. (Fig. V.)
6. Paste print of product upon composite print. (Fig. VI.)
7. Add advertising copy. (Fig. VII.)

Naturally, even in as simple and straightforward a procedure as the above, there were certain definite problems which arose, in addition to those preliminary steps, such as marking the ground glass of the camera, plotting the positions of the various elements in the picture area, and attention to lighting, angle and scale. One such special problem that might be of interest was that brought about by the type of image required in the case of the glass slipper upon the pillow. This must be, to make its

effect, an image with an air of insubstantiality, as if it were imagined, desired, or dreamed of, not actually there, a solid slipper set on a pillow and suspended in mid-air for no good reason. In other words, it was important that the pillow and slipper should not have the appearance of having been pasted on, as an unhappy afterthought.

In order to bring about the desired effect the pillow was made of red velvet, which, through the proper choice of film, enables the photographer to control the density of the image upon the negative. The cord, which bound the pillow, was yellow. In order to make the pillow appear transparent upon the film, a non-red sensitive film was used, and since it was desired to have the yellow cord stand out, the same film had to be yellow-sensitive. Commercial Ortho film satisfied the requirements set forth, with the result as shown in Fig. II. When placed in juxtaposition with the negative shown in Fig. I, the transparency of the pillow image allows the detail of the wall to print through, thus producing the insubstantial image of the glass slipper and pillow as shown in the composite print. (Fig. III.)

In conclusion, it should be emphasized that composite photography is a broad field. It has been the writer's purpose in these pages to present merely one small illustration of its possibilities and problems. (See opposite page.)

## A BOON TO THE NATURE PHOTOGRAPHER

The "hunter" with the camera, has often felt the need of an apparatus that would enable him to set his camera at a position where wild animals are likely to appear, and then be able to operate the camera from a comparatively large distance. The value of such an apparatus is at once evident. The photographer can obtain pictures of wild animals without their normal actions being disturbed by the presence of humans. According to a recent announcement made by E. Leitz, Inc., 60 E. 10th St., New York City, such an apparatus is now available for the Leica camera.

This apparatus is known as the Remote Control Device, and fits over the end of the Leica camera where the shutter winding knob is located. Two strings guided over pulleys operate this mechanism; one winds the shutter, and the other makes the exposure. In this manner the photographer situated at quite a distance from the camera, can expose an entire roll of from 30 to 36 exposures. A series of photographs of the various actions of the animals can easily be taken. Greater flexibility can be attributed to the Remote Control Device when it is employed in conjunction with a long focus objective. This will permit the camera to be placed at a greater distance from the scene of action. Undoubtedly the Remote Control Device for the Leica will be responsible for many interesting animal photographs. For more detailed information concerning this apparatus the reader is advised to write to E. Leitz, Inc.

Phone CLadstone 4151

## HOLLYWOOD STATE BANK

The only Bank in the Industrial District of Hollywood  
under State Supervision

Santa Monica Boulevard at Highland Avenue



# COMPOSITE PHOTOGRAPHY

1. Make negative of mother and daughter. (Fig. 1.)  
 2. Make negative of glass slipper and pillow. (Fig. 2.)  
 3. Put negatives together and make composite print. (Fig. 3.)  
 4. Make negative of product. (Fig. 4.)  
 5. Print of Product. (Fig. 5.)  
 6. Paste print of product upon composite print. (Fig. 6.)  
 7. Add advertising copy.

"Mother, could you wear  
Glass slippers?"

Mother could wear GLASS slippers, PARTY  
slippers, DANCE slippers or BEACH sandals,  
If  
she would clear up her foot troubles.

## THE LEICA CAMERA A VETERAN ACTOR

The Warner Bros. picture "Front-Page Woman" which was recently seen in theatres is by no means the first to feature the Leica camera. It does, however, carry a little "back-stage" story with it. It seems that Roscoe Karns, who is featured in "Front-Page Woman," was given a Leica to use for the purposes of filming the photoplay. As time went on, Karns became so enthused over the little camera that he bought one of his own and is now a confirmed enthusiast. The Leica camera has played in many feature productions to come out of Hollywood, and has been featured along with famous stars such as Greta Garbo, James Cagney, and many others.

Another bit of interesting news as issued from E. Leitz, Inc., 60 E. 10th Street, New York City, is that each month and each year see more and more Leica cameras sold. Statistics show that

the Leica steadily forged ahead even during the depression periods, one of the very few cameras to show such a record. This fact shows that the Leica is the popular miniature camera of today not only in America, but all over the world. It also shows that the Leica embodies the materials, precision, workmanship, and accomplishments which the public demands. Literature about the Leica may be obtained from E. Leitz, Inc., or may be seen at any good local photographic dealer.

CINEX TESTING MACHINES

CINEX POLISHING MACHINES

**BARSAM-TOLLAR MECHANICAL WKS.**

7239 Santa Monica Blvd.

Phone GRANite 9707

Hollywood, California

# MINIATURE CAMERA PHOTOGRAPHY

## Dufaycolor Pictures Again—Home Made Agitator—The New Leica Lenses, Etc.



**DUFAYCOLOR Pictures:** The photographer has no doubt many times heard the much stereotyped expression "color is life," but when he views some samples of Dufaycolor he realizes the full meaning of this expression. Color photographs, especially when we have a process which produces an excellent reproduction and rendering of the colors in the subject, have a charm which cannot be duplicated by a black and white print. This is not meant to belittle the latter, for there are many subjects and effects, which can be rendered properly only through the monochrome print.

One of the benefits of engaging in color photography is the cultivation of the habit of readily observing beauty in the color of ordinary objects. Commonplace subjects which we come in contact with in our daily life, may be capable of producing color transparencies of outstanding beauty. One may visit the beach continually and be oblivious of the abundance of color existing there—the bathing suits of various hues, beach umbrellas of variegated colors, etc. However, if a few Dufaycolor pictures are made and then flashed upon the screen, the doncing of the colors of the subject into the smaller picture on the screen clearly exhibits the abundance of color in "ordinary" objects. Merely describing the beauty of Dufaycolor pictures is not sufficient, it is really necessary for the photographer to actually see the results before he can appreciate the fact that engaging in color photography develops in one an appreciation of the pleasing hues possessed by commonplace objects.

In the selection of subjects one should not choose those in

which there is great contrast, subjects which are more or less flatly lighted, in which the shadows are not dense but well illuminated, will produce the best results. Color pictures taken in direct sunlight will also appear brighter than those taken on cloudy days. Direct sunlight makes the colors appear more brilliant.

Exposing Dufaycolor film at a speed of 16 degrees Scheiner will be found to produce the proper results, and some of the hints that are mentioned in connection with black and white photography will apply here also—when in doubt it is best to over-expose slightly than under-expose. Under-exposure leads to results that are too dense for projection. This advice is not meant to be construed that over-exposure is recommended for Dufaycolor. In a process of this type there is really one exposure that should be given whenever conditions permit, and that is the **correct** exposure, which demands the use of a good exposure meter.

Dufaycolor pictures can also be made in artificial (Photoflood or Photoflash) light. In this case it is necessary to employ a Wratten 78A (blue) filter to eliminate some of the red light. This type of illumination contains a relatively larger percentage of red than daylight, requiring the use of the blue filter, otherwise the results would contain too much red. With the Wratten 78A filter and Photoflood illumination the speed of Dufaycolor film is about eight to nine degrees Scheiner. A typical set-up for a normal subject is two Photoflood lamps, one on either side of the subject, about three feet distant from the latter, and an exposure of two or three seconds at f:9.

**The Leica Manual:** This book which has been long awaited by photographers will be available at the time this magazine appears. Perhaps some workers may have felt that an unusually long time was taken in the preparation of this book; however a perusal of its contents will convince the photographer that to prepare a book packed with so much information, containing so many beautiful illustrations, and being so well edited requires indeed a great deal of time. W. D. Morgan and H. M. Lester, the compilers of "The Leica Manual," as well as authors of some of its very interesting chapters, are to be highly commended for placing this mass of information at the disposal of the miniature camera user. Despite the fact that its name suggests that it deals solely with the Leica camera, nevertheless "The Leica Manual" serves as a textbook for all miniature camera users.

**Home Made Agitator:** Mr. John Y. Offutt, a reader from Towson, Maryland, has succeeded in devising a simple home made agitator. As can be seen from the illustrations (Figs. 1 and 2) this agitator is indeed very simple, and we quote Mr. Offutt as follows:

"As the photographs show, the contrivance that I have designed is being used with a combination radio-phonograph. The parts used are simple in the extreme, consisting of a 3½" piece of broom-handle, having a nail driven into the rounded end and being attached by a screw and a little glue to an ordinary phonograph record at its lower end, at a distance of 1½" from the center of the record. This is connected by an ordinary hack-saw blade to a cross-arm (a small piece of wood about 6x1¼"), through which is passed the handle of a tooth-brush with its lower end notched to fit the cross-bar in the hub of the Correx reel.

"In use, the filled tank is set in one corner of the phonograph, the tooth-brush handle assembly dropped into the hub of the tank, the hack-saw blade dropped over the nail in the upper end of the broom-handle, a rubber band snapped over the head of the phonograph pick-up and the outer right cor-

**MOVIOLA** FILM VIEWING and  
REPRODUCING MACHINES

ALL MODELS ON DISPLAY—FOR SALE—FOR RENT

*Illustrated Literature On Request*

**MOTION PICTURE CAMERA SUPPLY, INC.**

723 7th AVE., NEW YORK CITY      CABLE: "CINECAMERA"

**VARIABLE AREA RECORDERS**

PATENT NO. 1985584, OTHERS PENDING

ALSO

**35 mm to 16 mm**

**REDUCTION SOUND PRINTER**

**AND**

**SOUND EQUIPMENT**

Cable address CRSCO

**C. R. SKINNER MFG. Co.**

125 HYDE STREET    PHONE ORDWAY 6909

**San Francisco, California    U. S. A.**



ner of the phonograph (thus holding the pick-up away from the record and also holding the tank securely in the corner), and the electricity turned on. All of this can be done and the contrivance put on or removed from the phonograph (which is not altered or damaged in the least) in less than 10 seconds, and from that time on, without the slightest effort on the part of the operator, the contrivance will agitate the developer with a perfectly regular, slow, **oscillating** motion. While it would involve the effort of winding the machine occasionally, the contrivance could, of course, be used with a regular mechanical phonograph."

**A New Rollfilm:** There seems to be no limit to the speed of film. We now have Bauchet film, a French product which is rated at 30 degrees Scheiner. A test of this film revealed that it does possess great speed. It has a panchromatic emulsion, and is also claimed to possess a fine grain. Those photographers who are going to try this new film should bear in mind the general rule that the faster a film, the longer is the developing time necessary. In any event we would like to hear from miniature camera photographers who try this new film, telling of their results, so that we may pass this information along to other miniature users. This film is handled by George Murphy, Inc., 57 East 9th Street, New York City, and the reader is advised to write to them for more detailed information.

**New Prepared Developer:** In the May, 1935, installment of this department a formula recommended by the Edwal Laboratories, containing metol, paraphenylene-diamine and glycin, was listed, and in later issues of INTERNATIONAL PHOTOGRAPHER, the writer reported good success with this formula. Photographers whose time is limited can now purchase this developer in a prepared form. It is known as Edwal-12, and is supplied in a powder form, in cans, making one pint of solution, which develops five rolls of film.

**News from a Well Known Miniature Camera Photographer:** Kip Ross needs no introduction to miniature camera photographers, his unique candid photos appearing in outstanding newspapers, have won him the distinction of being one of the best candid photographers in this country. Kip now informs us that he is connected with the J. Sterling Getchell, Inc., Advertising Agency, which handles the advertising of firms such as Chrysler Motors, Sacony Vacuum, Knox Hats, etc. Of course the miniature camera is being employed in this work, and Kip states that he is at present making photos at an automobile plant, which will be used for a series of advertisements early in the fall.

**New Leica Lenses:** Three new lenses are now available for the Leica Camera. A 90 mm. lens with a speed of f:2.2 is being offered, which is designed for soft focus work. This objective

## BY AUGUSTUS WOLFMAN



is provided with an auxiliary disc of clear glass in the center of which is an opaque circle. The auxiliary disc screws into the front of the lens, and serves to produce softer focus. The lens can be used with the auxiliary disc up to f:6.3. Upon being closed further down the depth of focus naturally increases, and at f:9 there is evidence of the opaque circle being reproduced. As the diaphragm is closed down more the reproduction of this opaque circle becomes more evident, forming a clear portion in the center of the negative. After f:6.3 this lens produces sharp results, and therefore can serve two purposes.

A wide angle lens is also included in the new additions to the Leica objectives. This lens has a focal length of 28 mm. and a speed of f:6.3, embracing an angle of 76 degrees.

The third of the new lenses is the Telyt 200 mm. f:4.5. Its extreme focal length will make this lens valuable in sport and nature photography, and its relative speed gives it greater latitude in the matter of the lighting conditions under which it is used. This is the only Leica lens which is not coupled with the automatic range finder of the Leica; however, it is supplied with a reflex viewer and focuser, which obviates the use of the range finder.

**Fine-Grain Film and Sharpness:** Much has been said in this department of the advisability of using a fine-grain type of film whenever conditions permit, but it is well to bring another point to the attention of the miniature camera user. The fine-grain film will produce sharper results, and will enable one to obtain enlargements that have that "contact" quality.



Leicaphoto by E. Krymse; taken on DuPont Superior film.



Mustering Sheep: Photographed by A. C. Elworthy on Agfa Superpan film.

## SHACKLEFORD'S NEW BLIMP

Our globe trotting and paleontological friend, J. B. Shackelford, who won fame browsing around among the fossils of Gobi Desert with Roy Chapman Andrews, breaks the silence of the editorial welkin by announcing that he has completed and patented a wonderful all around camera blimp which may be used for sound or under water or any other way—and it weighs only thirty

pounds. It can be used with Mitchell, Akeley, Eyemo, De Brie or any other movie or still camera or with any Bi-Pak color camera.

In short, it is, to hear J. B. tell it, one of those things that can't be beaten anyway you fix it.

The camera is at all times accessible from all points and the blimp lifts off its base on the tripod by disengaging of four simple catches.





Charming corner—  
bright blue bowl  
framed by greenery.

# A Leica-Shooter VISITS THE FAIR



Two years ago I went to the World's Fair in Chicago and saw sights of all kinds, shapes, colors, and variety, but I didn't have my little Leica, so they went unpreserved and unsung, and most of them even unremembered. This year I went to the Fair at San Diego, and along went my minicam with me. We had a grand time preserving sights that we and the

when they interfered with a picture I didn't seem to appreciate them as individuals. The patience of a photographer is proverbial (or should be) and so it really didn't bother me as I got used to waiting. But it **was** slightly disconcerting when I had my lens trained on an interesting, wrinkled old Mexican face, to have someone else, far less interesting, come and sit



Left, Casa Del Rey Moro; right, Curving Hall, Ford display. Camera in hand. One-half second exposure. Center, singing fountains—sun bath. Oval, shoes are a nuisance after an hour's walking. Circle, In Gold Gulch.

rest of the crowd saw. It took the completed prints of some of the pictures to assure the rest of my party that we really got what we wanted in some of the interior shots and the night scenes. It really was a surprise to me to find out how much I could get with my 3.5 lens. The bane of the photographer's life—the desire for more and still more equipment, was stilled a little after these results.

Even though one of the members of our party insisted that in the way I sneaked up on people and caught them in informal poses I was more of a freak and an exhibition than the Fair, we all enjoyed it. The people whom I was "catching unawares" did not seem to notice me, and that was made-to-order for my purpose, as the other "lookers" at an exposition are always more interesting to me than the fair itself.

We found a group talking on a bench, resting and watching the musical fountain, and in the center of the group was a man unconcernedly holding his feet, which were devoid of shoes. He had grown tired of walking and was resting his feet. I guessed the distance that he was from the camera, calmly lifted the instrument to my eye, and shot away silently. No one was the wiser and I got a priceless human interest picture of "Life at the Fair."

Another time there was a group on the lawn, resting full length in rather unusual positions and the sunlight just right, bathing them in an aura of unreality. I managed to make a picture standing practically on top of them, and the click wasn't even noticed.

The greatest difficulty within the buildings was to get my shots between the crowds. Just as I had one all planned, focused and sighted, in front of my camera walked a black mass. When these masses took individual shape as gawking tourists, or cute children, or bent, picturesque old people, it was all right; but down in front of my camera and read a very prosaic letter—at least I am sure that it must have been prosaic.

I let a group of sailors in rickshaws see me take their portraits because I knew that they would like it. Sure enough, off came their hats, and wild waving greeting me as their drivers pulled them by.

The night pictures were a little more difficult, as I had not bothered to carry a tripod into the grounds with me, but I did manage to stop a few shots at a second exposure with the lens wide open, holding it in my hand. Of course, there were several questions asked by people who noticed what I was trying to do, and it was much more conspicuous at night, as I had to hold my position long enough for the dear public to notice that something was going on—and no one can resist a picture—but then, Leica shooters are used to explaining their instrument, as it appeals to the eye and the general public is always interested in anything small.

The whole group of five of us who saw the Fair together admitted that it was fun taking the camera with us, and was worth its price of admission, during our tour of the ground and afterwards, when we had the photographs to go over together.

**35mm. Eastman or Dupont**

Fresh Gray Backed Negative

Price 2½c per Foot

for

AMATEURS or PROFESSIONALS

**KINEMA KRAFTS COMPANY**

6510 Selma Ave. Hollywood, Calif. GLadstone 0276



# Interesting Facts About Light Filters

Important research work, of interest to all photographic workers, has been carried on by the Ramstein-Optochrom laboratories, expert filter makers. It is advisable that we take notice of this, so that we may enhance our pictures by the proper understanding and use of filters.

Many photographic amateurs are still working with orthochromatic material. This is extremely sensitive to blue, less so to green, and not at all to red. An unfiltered exposure on this emulsion reveals that blue is rendered much too light, so that an ordinary landscape photograph is reproduced with the sky as light as the clouds, thus making the clouds invisible. The obvious remedy for this is the use of a filter which reduces the amount of blue light to reach the film. Such a filter is the Optochrom Yellow. Produced in four densities, marked 0, 1, 2 and 3, this allows us to control the amount of blue light we wish restrained. The deeper the color of the filter, the darker is the blue rendered. Correction for red with this emulsion is obviously impossible.

With the modern highly red-sensitive panchromatic emulsion the problem is a little different. While this film is still highly sensitive to blue, it differs from the orthochromatic by displaying a weakened sensitivity to green, and a greatly increased sensitivity to red. Since the yellow filter does only part of the job (that is, taking out some blue, but does nothing to subdue the red) a new filter was conceived. This is called the Universal green. A yellowish green in color, the effect of this is to impede the transmission of blue and red while allowing the comparatively unobstructed passage of the green rays. This filter is made in two densities, marked 1 and 2, with factors of 2 and 3 times respectively. But this is only part of the story behind this ingenious filter.

Since the latest orthochromatic emulsions can in a certain sense be considered panchromatic, except for the absence of red-sensitivity, this new filter can be used with them also, having in this case an equivalent effect to a yellow of equal density. Even the same multiplying factors hold true! Hence the name Universal, truly a triumph of the filter maker's art.

In connection with photography by artificial light, filter research has gone off on an entirely different tangent. Because of its speed, panchromatic material has been almost universally

used by photographers for work under tungsten lamp. However, since the spectral composition of this light is entirely different from that of daylight, being rich in red and yellow, and comparatively poor in the blue, rays, still another, and totally different, filter became necessary. This was born and christened the Optochrom Blue. A very pale blue, this filter subdues the yellow and red rays, while allowing the blue to pass practically undisturbed. It requires an increase in exposure of only 50%!

A portrait of a blonde-haired person with blue eyes and red lips, taken without a filter in tungsten light, looks mighty queer indeed. The eyes are rendered quite dark, the lips much too light, and the facial color rather pale and without life. The use of a pale blue filter, with its characteristics as described above, changes all this so that a correct rendition of the tone values results.

Of exceedingly great interest also are the three special filters devised by Optochrom. These are termed the Optochrom Reform, U. V., and Red.

The Reform, used in landscape work to hold back the distance and for an improved rendition of the sky, is a steeply graduated filter of circular shape, ranging from clear glass to deep yellow. No increase in exposure is required.

The U. V. is practically colorless, used in mountain photography, to absorb the ultra-violet light to which the photographic emulsion is normally over-sensitive. There is no appreciable increase in exposure.

The Optochrom Red, for use with panchromatic and infra-red emulsions, does several interesting things. It is unexcelled for photography of far distant views and for exposures in misty weather. Its rendering of blue is so dark that it is possible to produce convincing night effects in brilliant sunshine. Its rendering of cloud formations is magnificent. With panchromatic material the exposure factor is from six to eight times. With infra-red, about thirty times.

All Ramstein Optochrom Filters are manufactured according to the best modern scientific principles. They are of the thinnest optical glass, colored in the mass, and ground and polished with the same meticulous care usually accorded the finest of lenses. Despite all this, the prices in all sizes are amazingly low.

These filters are distributed in the United States in all types and colors by Burleigh Brooks, New York City.

## FREUND CALLS CAMERAMEN UNSUNG HEROES OF FILMS

Unsung heroes of successful film productions are cameramen. If the public ever thinks about the photographers at all, they simply believe they turn a crank or push a button to operate the camera's motors. Instead, the whole complex business of picture making devolves, in the final analysis, upon the man behind the lens. Story, acting, talent and directorial ability mean nothing unless they are painstakingly captured in celluloid. And when production executives occasionally find themselves "stumped" in obtaining special effects, they know that somehow or other their cameramen will provide the proper answers.

—Karl Freund in Film Daily.

FRANK C. ZUCKER

J. BURGI CONTNER

## Motion Picture Camera Supply, Inc.

now has the Largest Stock of New and Used Modern Camera Equipment and Accessories of any Camera Supply House in the World!

### NEW MITCHELL SOUND CAMERA NOW ON DISPLAY

We sell Simplex Portable 35mm Sound Projectors, Moviolas — also new and used Mitchell, B. & H., Akeley, DeBrie Cameras and Equipment.

Regardless of your requirements, whether you want to buy or rent new or used equipment—call us for a quotation.

We only sell equipment that is thoroughly guaranteed.

Phone, write, wire or cable for quotations.

*Eastern Representatives*  
MITCHELL CAMERA CORPORATION  
HARRISON FILTERS  
FEARLESS PRODUCTS

## MOTION PICTURE CAMERA SUPPLY, Inc.

723 Seventh Avenue, New York City

Telephone BRyant 9-7755

Cable Address: Cinecamera



# Random Suggestions On Journalistic Photography

By KARL A. BARLEBEN, JR., F.R.P.S.

(Several types of salable photographs. Practically all of these pictures have appeared in newspapers and magazines. This series contains spot-news, candid, spectacular, feature, personage, aviation and pictorial news types.)

**I**N several of my articles which have appeared in former issues of THE INTERNATIONAL PHOTOGRAPHER, I pointed out that there are definite and profitable possibilities in free-lance press photography, better known as journalistic photography. Let us at this time dwell a bit on, and possibly amplify, those former articles which concerned themselves principally with the outlines and equipment involved.

Journalistic photography is one of those things which some people believe in and others pass up as being a myth. The facts of the case are that a good many individuals have found the making and selling of photographs not only pleasant but profitable. While the vast majority do this sort of thing in their spare time, in the nature of an avocation rather than a vocation, there are some who have been able to devote their entire time and attention to it. H. Rossiter Snyder might be regarded as one of the most successful and prolific journalistic photographers in this country today. His writings on the subject have undoubtedly assisted many beginners on the right road. He is but one example of the type of person who can make good in this work. There are, however, many who cannot make a go of it at all, no matter how hard they try. To these, the truth of their inability to do the work should be known, for it is a profound pity to see earnest people buying equipment and spending their time in a futile effort to become successful journalistic photographers.

While I may be wrong, I have always felt that there is more to the creative arts than merely the desire to make good. It almost seems as if we must be born with certain characteristics in order to produce useable material. In a way, this is only natural, for we cannot all be masters of everything—we are endowed with certain qualities which permit us to develop certain work to a high degree, while on the other hand we may be total dubs at something else which is foreign to our capabilities.

It is therefore, of greatest importance that the beginner in journalistic photography study himself candidly and impartially. He will be far happier in the end, in another type of work, should he find himself unsuited to the requirements of photography. We all have natural tendencies which subconsciously incline us towards certain lines of endeavor. Hence the successful surgeon was interested in medicine, even as a child, the artist enjoyed drawing and painting pictures, crude, perhaps, but pictures nevertheless, as a child. In our childhood, we usually display our true leanings, and it is a wise person indeed who answers these natural calls and later, as he grows into manhood, practices them as a life-work.

But take the case of a person who actually is gifted with the necessary requirements of journalistic photography, yet cannot make a go of it because of the lack of technical knowledge. Here is a case which can easily be cured by simple direction in the proper channels. Today there is no excuse for not being able to improve one's technique, either with the camera as an instrument or in the mapping out of campaigns for pictures and stories. There is a most complete list of books on the subject of photography from which one can grasp the fundamentals. Armed with some theoretical information, a little actual practice usually results in a speedy and successful understanding of the camera.

As a guide to making and selling of photographs, the following books might be mentioned as being not only inspirational but helpful as well: "Candid Photography," by Kip Ross; "News Photography," by Jack Price; "How to Make Money With Your Camera," by the editors of Popular Science Magazine, and "Cash From Your Camera," by Snyder and Barleben—if you can still get a copy, the last edition having been exhausted some time ago. These constitute the bulk of present-day literature on the subject. A helpful series of paper-bound booklets is also on the market, these from the pen of the aforementioned R. Rossiter Snyder. If a deeper understanding of all phases of newspaper work in general is wanted—and it is a good idea to absorb this knowledge—the reading of "City Editor," by Stanley Walker, is suggested. It is written in a non-technical style which is desirable in this case, as one doesn't need the involved technicalities of newspaper work.

Actual study courses in journalistic photography are offered by Universal Photographers, Inc., located at 10 West 33rd Street, New York City. Market guides and lists are to be had from various sources. One of the best is John P. Lyons' "Photo Markets," which is published at intervals, thus assuring the contents being strictly up-to-date. This little volume costs only fifty cents a copy, and may be obtained at local photographic stores or direct from John P. Lyons, Box 25, Baltimore, Md.

Perhaps one of the most important things to know in journalistic photography is where to send material. This requires keen study and observation, both with regard to a reliable market list and also the various newspapers and magazines themselves. It is perfectly obvious that no matter how excellent a photograph may be in all respects, if it does not fit in with the editorial requirements of the editor to whom it is submitted, it must of a necessity be rejected. While rejections are nothing to be ashamed of, they can be reduced to the minimum by first carefully studying the type of material used by any newspaper or magazine before submitting.

Once a journalistic photographer "hits" a newspaper or magazine with acceptable material, he should try to keep this market "alive" by sending, from time to time, additional suitable material. In time this means a good deal in both goodwill and profits. Naturally no one individual can possibly hope to cover every paper and magazine in the country, hence it is preferable to cater mainly to a few selected ones whose requirements are known and can be satisfied. In short, don't attempt too much coverage; be satisfied with a small clientele rather than sending material at random.

Another influential factor is that the journalistic photographer should "stay in his own back-yard," that is to say, he is best off when working in fields which he knows best. To illustrate, I know nothing about plumbing, hence would think twice before making photographs and writing articles covering this subject. Many cameraists take too much for granted and enter fields about which they know little or nothing. Sometimes it works, but for consistent success, the chances are very slight indeed. If there should arise an occasion for the journalistic photographer to work on an unknown subject, he should first study all he can so as to familiarize himself with it. There are libraries in every city and town, hence there is no excuse for not following this through.

At first thought this suggestion might appear to be unnecessary, but consider for a moment—suppose you are called upon to photograph some construction scenes and know little or nothing about engineering, brick-laying, iron-working, etc. The photographs you are likely to make may not be just what the editor had in mind **because you don't know what the trained constructional worker wants to see in your photographs.** In other words, pictures of commercial, sales, and industrial subjects should be made through the eyes of one familiar with the subject so that the trained mind can see what it wants to see—and from the right angle. For this reason, it is risky business doing jobs of subjects which are not familiar. If I were



**The Last Word**

In Sound Recording

**THE NEW PRINCIPLE**

**MINOR QUARTZ OPTICAL UNIT**

becomes an integral part of your sound recorder—this unit is cemented into a steel block—it focuses a beam of light of great intensity and actinic value a distance away and on the film, which PROVIDES CLARITY and PREVENTS SCRATCHING of the sound track. The width of the beam of light measures from .0005" to .0008" as it strikes the moving film.

This Quartz Optical Unit was used for the sound effects in the recent production of the "Tarzan" picture, filmed in Guatemala and referred to in the March issue of International Photographer.

Send for details and specimen of sound track.

**C. C. MINOR**

1835 Whitley Avenue Phone: GR. 4781 Hollywood



to make a picture of a camera or piece of photographic equipment, I'd know at once how to photograph it, because I know what the photographers would want to see about that equipment, about the things that interest them most.

Some photographers, like reporters on newspapers, have during the years accumulated a remarkable fund of miscellaneous knowledge by studying various subjects. In their cases, they can go forward confidently on a job, knowing fairly well what is expected of the photographs they will produce. This point is mentioned here because the numerous trade papers and magazines constitute one of the most profitable markets for the

for there is no telling beforehand how much space can be given over to it, hence, it is always wise to play safe and make prints which are large enough to permit the editor to "juggle" them around if need be.

Another point to be watched for is composition. The day is past when editors will accept any old thing. The print must be right, must have eye-appeal. The public, as the editor knows, is becoming more and more critical. Even a casual study of the illustrations found on magazine covers and pages will reveal a far higher percentage of pictorial pictures than formerly. Particularly is this true with the better type "class" magazines.



Upper Left: Clarence Chamberlin, noted flier, poses in front of the nose of his 'plane.—Leicaphoto by Karl A. Barleben, Jr.

Top, Center: Table-top photography—this picture is so realistic that when published in a Toledo newspaper, a reader called wanting to buy one of the pups. Pups and boy are made of China.—Leicaphoto by C. A. Goldner.

Upper Right: Lightning striking the Empire State Building, New York City. This unusual night picture, made during a thunder-storm, shows not only the Empire State, but the Chrysler tower—the entire scene illuminated by lightning flash.—Leicaphoto by Dr. K. Winfield Ney.

Lower Left: Firemen at work on a frosty winter's day.—Leicaphoto by Augustus Wolfman.

Bottom, Center: "Water-Front Daze," a candid photograph by Dr. William P. Eckes of New York City. Leica camera, Summar 50mm, f:2 lens at f:4.5, 1/100th of a second shutter speed, Eastman Panatomic film, developed in Edwal formula developer, printed on PMC No. 10, glossy.

Right Center: Curtis "Falcon" winging along the airways.—Leicaphoto by A. H. Chapman. F:3.5, 1/200th second exposure, medium yellow filter, DuPont Micropan film, developed in Eastman D-76 formula.

Right, Extreme Lower: Through the Arch.—Leicaphoto by Karl A. Barleben, Jr. Summar 50mm lens at f:6.3, 1/60th second exposure, DuPont Superior film, developed in MPG.

journalistic photographer. They pay well, and are always open for new pictures and descriptions. But because of the pitfalls, the beginner usually tackles the easier type of work, that of news and feature value. This is wise, for it serves to acquaint him with the routine and short-cuts which all businesses have. At a future time, when he feels honestly able, he can turn his attention to the more specialized fields with greater success and confidence.

In spite of the volumes of books and magazine articles which have been written, beginners usually throw away their chances of selling their wares by submitting small prints. Let it be definitely understood that the editors will not accept prints smaller than 5x7 inches. They much prefer 8x10s. It is just as easy to submit material the way they want it as not. Make it a standard rule to produce only 8x10 inch enlargements, ferro-typed glossy finish, sharp, clean-cut, full of "meat" and detail. Prints are further enhanced by being suitably mounted on semi-stiff white cardboard, similar to the material used for the mounting of salon prints. The mounts need not exceed 11x14 inches, the 8x10 print fitting nicely into such an area. I know one very successful candid cameraman who never sends a print out without first mounting it attractively. This may seem unnecessary, as indeed it is for all practical purposes, but editors are human, and a print dressed up and made easier to handle makes a decided hit with them.

Editors like fairly big prints, for they like to, and most of the time have to, "cut paper dolls," that is, trim and carve the print or prints so as to fit into a certain allotted area in the finished newspaper or magazine page, as the case may be. With the large print this is easily possible, but with a small print, it can be understood that there would be but little left should they do any "cropping" on it. In most cases the picture is reduced during the making of the half-tone or "electro." With a small print, there isn't a great deal of latitude for this,

The ability to make just a picture is no longer enough—the picture must be technically and pictorially good in the bargain. There is, therefore, a real necessity for turning out pictures which are built upon the principles of artistic composition. This is a matter of inner-sight, so to speak, most successful artists and photographers knowing instinctively when a perfectly-composed picture presents itself before them. The rules of composition are, naturally enough, clearly defined, so that a person totally devoid of any natural ability in this direction can assist himself in the turning out of good pictures, but it goes without saying that composition is best taken care of by instinct rather than study.

When thinking of selling photographs we naturally consider only the markets existing in the United States. There are, however, thousands of fine markets in other parts of the world. There is Canada, for example, Great Britain, and Australia—all English speaking countries which have their own newspapers and magazines in just as great numbers as we over here. Forgetting for the moment the nuisance of postage and delay of time, these markets offer excellent mediums for American workers because they are usually interested in American subjects and news to even a greater extent than our home markets, which is but natural. Then again, there is not the severe competition to contend with. Wise journalistic photographers do not hesitate to make contacts in other English speaking countries, for they know that they have markets which are well worth-while going after.

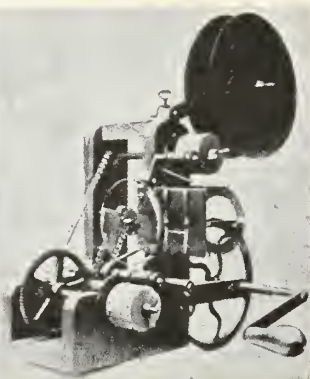
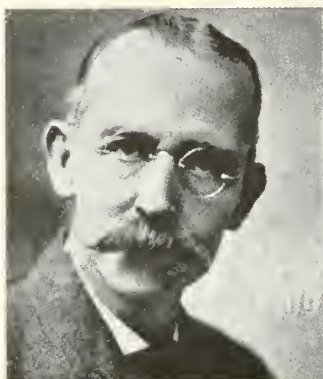
In skipping briefly over these few suggestions, one cannot help but realize that journalistic photography is indeed a business by itself—different from any other form of photographic activity. As a business, it must be conducted along business-like lines. Failing this, the worker soon finds himself definitely in the "red." A little thought, a little work, and little study, and the field is wide open to him. Isn't it worth it?



# JEAN ACME LeROY-PION

By M. R.

Written for The International Photographer



**S**INCE the days of the illustrious Daguerre, members of the craft he founded have been prone to dream dreams. It is one of every cameraman's prerogatives. Searching amid the perennial mysteries of light and shadow, and exploring the magic realms to which the science and mechanics of the photographic art furnish the master key, seems to be provocative of visions.

This, therefore, is the story of a cameraman who had a dream.

It is a truism, as trite, as it is briefly descriptive, and hence apt to what follows, that in the development of any art it is the dreamer of today who envisions the realization or reality of tomorrow. So, with the man concerning whom this article deals.

He was only a photographer's apprentice. But he conceived the idea that pictures might be made to move in a life-like manner. He placed his camera on the window ledge of his master's shop, and watched, through the ground glass back, people passing by.

They were upside down and small, but he believed they could be turned right side up, enlarged, and shown on a wall, just as he saw them on the street. He watched and he wondered and the idea grew upon him.

Through the eye of his camera lens he watched the world pass in review before him.

Who knows but that he may even then have glimpsed the magical development of the art, which today has built palaces in every city of the civilized world, to which countless millions of people repair in the course of a year to be edified and entertained, enlightened and informed?

This was in the year 1873. The place was the studio of Joseph Thwaites, famous photographer of pre-Civil War days, at No. 1 Chambers Street, New York City.

His apprentice was Jean Acme LeRoy, now known in the annals of the film's development in America as the inventor of the first projection machine and as the man who first took the motion picture out of Edison's "peep box" and displayed it on the wall, where all the world might see it, marvel and enjoy.

It is a curious thing that LeRoy has never been rated as a true member of the camera craft, to which he devoted so many of his best years, a training which, by reason of his thorough backgrounding in the theory and science of the photographic art, made possible his later valuable contributions to cinematographic development.

He has been variously classified in motion picture history as an inventor, master-mechanic, showman, projectionist and in a score of other ways, but never as a camera expert, who may be said to have had a master's degree in every branch of the photographic processes and mechanics of his day.

I have before me as I write, some examples of his early work with a still camera. They are pictures of the Brooklyn Bridge, taken at the time it was being built and showing various stages in the progress of the construction of that engineering marvel, between 1875 and 1883, in which year it was first thrown open to the public. They are among the best specimens of photography I have ever seen, being absolutely stereoscopic in quality. One can hardly believe that they were taken nearly fifty years ago.

I mention this because it may be of interest to readers of the INTERNATIONAL PHOTOGRAPHER and in order that future film historians may classify LeRoy aright. He is a member of the photographic craft of whom every cameraman should be proud, for his record of accomplishment and his important contributions to the development of the great industry with which most of the craft are allied, will rate higher and higher as the years go by.



This beautiful shot was made by Mr. Paul Perry, formerly an...  
cently opened at Manila, Philippine Island T



# ER CINEMATOPHOTOGRAPHER

AWFORD

ographer of New York



of 659, but now proprietor of the first color laboratory, re-  
presented is typical of modern Mexico.

To return to LeRoy's early days and his dream of making pictures move in a life-like manner.

After his apprenticeship ended at Thwaites' studio, he exhibited stereopticon views or "magic lantern" slides, as they were then known, both on his own behalf and as an assistant to lecturers. The slides were entertaining and instructive, but he felt they would be far more so if they would show continuous movement.

He figured out that the only way in which it could be done was by means of "step photography," taking a series of pictures with the same lens and from the same position.

Going back to Thwaites, he persuaded two friends, a boy and girl, to help him. He had them dance a waltz, stopping the dancers as they completed each movement, and having them hold their position, while he exposed a plate. In all he photographed some two hundred of these "still" poses in series, with the skylight as his only lighting.

Then he constructed a box in which were a projector, an oil lamp and a reflector. The 200 slides were fitted in order, in a receptacle from which they were dropped, held before the lens for an instant and then deposited in a receiving magazine. The effect was motion of a sort. The pictures "moved," but there were several drawbacks.

In the first place the machine was cumbersome, weighing more than 100 pounds. Moreover, it was quite a costly piece of apparatus. But that wasn't all. The machine made so much noise that the attention of the spectators was distracted. And the whole entertainment lasted only a minute and a half.

But LeRoy wasn't discouraged. He continued his experiments and between 1887 and 1893 made much progress. His attention eventually became centered in film, that, at least, could be handled easily and was noiseless.

It was in the last named year (1893) that LeRoy made his first projector. It was a pretty crude outfit, being made mostly of wood, but it was successful in that it produced the desired effect of "motion." He used unperforated film, made by Donisthorpe, a London manufacturer. Friction rollers were used to feed this film and the "stop-motion" was achieved by means of intermittent rollers.

Rotation was obtained by a hand wheel with a leather belt to transmit the revolutions and chain sprockets to distribute them. A reel on top held 600 feet of film, which took about 15 minutes to run.

LeRoy first used perforated film in the fall of 1893. At that time Edison's coin-in-the-slot kinetoscope, the famous "peep-box" of cinematic history, was just being introduced on Broadway.

These "peep-boxes" used perforated film and LeRoy obtained some of it and altered his machine by putting in toothed spools to engage the holes on the edges of the film. He also improved the feeding mechanism. Then a few months later came the realization of the dream which the young photographer's apprentice had had more than a score of years before.

The date of the first true motion picture shown in this country is Feb. 5, 1894. On that evening about twenty-five persons gathered in Riley Brothers' official store at No. 16 Beekman Street, New York City, to see a device which would put moving pictures on a wall where all might see them, instead of in a box where only one person could view them at a time.

Naturally, there was plenty of skepticism about what LeRoy had undertaken to show, the more so as included among those invited were men well known in the theatrical world. But the show was a complete success.

There were present at this historic performance such well known theatrical and booking agents of the time as James J. Armstrong, George Liman, Tony Smith, J. C. Turner of Koster & Bial's, George Dexter, and John H. Anderson, manager of Huber's Museum. It is not recorded what they thought of LeRoy's device. But he was swamped with offers of capital or bookings.

Two films were shown, "Washing the Baby" and "The Execution of Mary, Queen of Scots." It took only a minute and a half to run the two films, which were projected 20 feet to a screen and showed there at a size of 4½ by 5½ feet. The motion picture had come out of its box and was on its way.

Thus was given the first picture show in the United States and thus was born an industry, long since rated in the billion dollar class and third or fourth in the list of the nation's great industrial groups. LeRoy's modest performance was the foundation stone which marked the beginning of an institution that now entertains its millions nightly and whose enlightening influence in the progress of civilization no man can measure.

It is interesting to note that the first film ever screened, "Washing the Baby," is still being exhibited now and then. The last time was at the Cameo and Fifth Avenue Theatres, New York, and several other Keith houses in the summer of 1928.

(Turn to Page 19)



# Commodore Blackton Takes His New Job, Like All His Former Great Ones, Seriously

By REX H. LAMPMAN



**W**HEN J. Stuart Blackton, a young reporter who adorned his stories for the New York Evening World with his own pen-and-ink sketches, interviewed Thomas A. Edison at East Orange, New Jersey, on the subject of the new thing then sometimes called the kinetoscope, a train of events was set going that rocketed the reporter into fame as a producer of motion pictures—not yet called movies when Blackton went to see Edison—and recorded many of the most vital chapters in motion picture history.

Kinetoscope survives in our slightly parfait word cinema, commonly used by the French, who spell and pronounce it with a "k". Motion pictures have evolved their own terminology, almost their own language. The one man who has seen close up every change in their protean growth is J. Stuart Blackton, for whom the first motion picture camera and projector were demonstrated by the man who invented them.

Reporter Blackton had other interviews with the wizard of Menlo Park. The artist-reporter, accustomed to think in pictures, although the Imagists had not arrived on our cultural scene with their insistence on graphic expression, became completely movie-minded. Pictures in action! That was something! He saw a new and fluid medium, another art whereby man might record himself engaged in the various business of living. Loving, hating, hoping, fearing, fighting, aspiring, renouncing, achieving, conquering, failing—all the tragico-comedic pageant of human emotion and endeavor the young interviewer beheld in swift sequence on the screen of his imagination, as it might be made to move in pictures before the eyes of many millions.

Four months after his first interview with the world's greatest inventor, the World's young Mr. Blackton, the reporter who sketched and who had a liking for salt water that was to make him a yachtsman and commodore of the Atlantic Yacht club, turned his back on pens and pencils and began squinting through a whirling black box at whose side was a little crank which he turned as he squinted. And as Blackton irised in, Edison faded out. The aging inventor had done his work, and he was ready and willing to give over the job of making motion pictures to those who had the vision for the task almost as soon as they appeared.

Thus J. Stuart Blackton took the movie trail where Thomas A. Edison left it. Tiny back-street theaters and nickleodeons where 50 and 100-foot pictures sputtered and flickered were on their way to become glittering palaces where never an actor took a bow, luxurious show houses devoted entirely to the astonishing new art form of pictures that moved.

The writer of this narrative was in Commodore Blackton's

office the other day when Harry Blair came to interview him for the Hollywood Reporter, snappy film daily. The newsman was almost reverent in his manner toward the man he came to interview and, presently, I saw why. The interview was to relate the plans and purposes of the Hollywood motion picture relief project, operating on the old Metro lot on Romaine street with nearly 300 men and women on its roster, making pictures that tell the story of the government's effort to quicken the industrial tempo and hasten complete industrial recovery. Commodore Blackton is directing supervisor of the project, itself a relief enterprise recording the relief program in films that depict the character and progress of the vast effort for the entire country.

Blair got his interview with the quick and easy technique of all good reporters. He learned that the project is soon to go under the Works Progress Administration, with workers on full time at living wages. He learned and relayed with other facts to Reporter readers the fact that of all the workers employed on the project in its nine months of existence, with every studio activity from grips to directors represented, nearly 33⅓ per cent have gone from the project back to regular jobs in Hollywood studios. A record for reemployment.

Commodore Blackton told the newsman that instead of making one film a month, as it has been doing, the project would soon go on a schedule of six, two to be newsreels similar to those already produced, two of an educational character and two to show in story form what federal relief means in terms of human salvage and happiness. The reporter learned of the generosity of the great studios in lending cameras and laboratory, sound and other equipment so that workers they themselves cannot employ may have work for which they are qualified by talent and training. An average of 250 workers are on the project payroll, said its chief.

Blair had quit asking questions and was sitting on his notes. But the interview was not over. Here's what happened:

"I used to see every Vitagraph picture," said Blair, "and I thought they were the finest pictures in the world."

Then they were off, and the little office became filled with shadowy figures out of the past. They talked of the days when the movies were young. Through the window I could see the door of Rudolph Valentino's dressing room, and the old lot, donated for the project's use by Metro-Goldwyn-Mayer, became for me no less a scene of picture action. It was here that the young sheik of the films rose to sudden fame. Here Rex Ingram achieved his directorial triumphs. Here Nazimova came to give to celluloid the print of her flaming genius. Here Viola Dana, who played with the first Edison companies, registered on the little picture-ribbons her wistful, tristful creations of character.

Reporter Blair, now mere movie fan Blair, recalled that a young man named Rex Hitchcock was an extra in one of Commodore Blackton's early companies. He became Rex Ingram and came to Hollywood and into fame and fortune. Valentino's first six months of screen experience were in playing small parts at Vitagraph studios in Brooklyn. Movie fan Blair remembered that, too.

They talked of Florence Turner, first star of Vitagraph, the company organized by Commodore Blackton with two others in the summer of 1896, on the impetus of his interviews with Edison. What a tribute of admiration they paid that actress!

"I saw Florence Turner the other day," said Commodore Blackton, "and she looks lovely."

Blair recalled that in the days of her Vitagraph starring Miss Turner was office girl and bookkeeper for the company. Her mother was wardrobe woman, and helped generally, from holding script to playing extra. The actors swept out the place and helped build sets as part of their regular work. This sort of thing continued for years in movie making. Maurice Costello was the first actor to rebel. That ended it, except for the smaller independents. Actors ceased being handymen and roustabouts.

"I know a man with Vitaphone who used to be with Vitagraph," said Blair, "Daddy French, in charge of the laboratory."

"Indeed he was with Vitagraph then and straight through



Vitagraph's career," said Commodore Blackton. "Jimmy French was Vitagraph's very first employee, the first person we hired when we organized in '96. He doubled in a lot of jobs in those days."

Those were the days when Tannhauser was starting at New Rochelle, and Vitagraph was on Sixteenth street and later in the Bronx, and Lubin was beginning in Philadelphia. The screen's great lovers then were the Lubin players, Arthur Johnson and Lottie Briscoe. Norma and Constance Talmadge were pig-tailed school girls who lived neighbors to Vitagraph and wandered on the lot to be put to work as extras. Great-to-be names were coming into the cinema cosmos: Mary Pickford and the Gish girls at Biograph, Mable Normand at Vitagraph. Chaplin, Fairbanks, Theda Bara, Tom Mix—all in the future.

"When I was a boy I thought your 'Hearts of the First Empire' was about the grandest thing ever made," said Blair, "and it was grand. It lifted pictures from the more or less trifling subject level, gave them the grand manner that became their own province, that the stage could not approach. Leah Baird, Harry Northup and Earl Williams played the leads in 'Hearts'."

But Commodore Blackton just then liked to think of "The Discarded Favorite," an 800-foot picture in which Florence Turner was the only player.

"And not a line of titles!" said Blair. "She played the whole thing by pure expression. And her hands were as eloquent as her face and eyes."

"Yes," said Commodore Blackton, "all the help she had was once or twice, when hands appeared on the margin and when the hand of the new favorite, whom she had killed with a stab through a curtain, was seen on the floor as it had fallen through."

Eva Tanguay singing "I Don't Care!" in 1907 or '08, with a phonograph back stage supplying the sound, was the first talkie Blair ever heard, and he remembered the screen's first dog actor,

a collie named "Jean" appearing in shorts with Bobby Connolly and Rose Tapley.

Commodore Blackton told Reporter Blair that he had plans to bring some of the older screen players back before their public.

"I saw Clara Kimball Young not long ago and she was very beautiful. Wouldn't thousands be glad to see her again and to know that she looks very much as she did when she was playing the great emotional roles that made her famous? And Flora Finch! She hasn't changed at all since the days when she and John Bunny were originating the technique of motion picture comedy, establishing its traditions. Wouldn't the folks who saw these grand old players in their heyday be glad to see them again? I think they would."

Reporter Blair thought so too. And that's one of the things Commodore Blackton intends to do with the motion picture relief project on Romaine street in Hollywood—bring back some of the old-timers to the screen.

Who knows but that these cherished names, once their owners are again before the camera, will not find their way into theater publicity the country over, perhaps again be written in lights over the entrances?

The man who made and set the flagpole on the cupola above the columned entrance to Metro many years ago—he built the building, too—is back there now building sets. His name is Charles Lashley. He was foreman of set construction in those days before the Metro-Goldwyn merger, before "The Four Horsemen" made a star of stars out of an unknown cabaret tango dancer named Valentino. The letters of that name still are to be seen dimly on one of the dressing room doors.

"We had great people then," says Charley Lashley, "and we have some of the best talent in Hollywood, in all lines, here right now on this project. We're going to make some damn good pictures. It's been done here before. We'll do it again!"

## JEAN ACME LeROY—PIONEER CINEMATOGRAPHER

(Continued from Page 17)

LeRoy, whose principal possessions now consist of what is probably the most complete library of early motion pictures in existence and a valuable collection of documentary records covering every phase of the film's history from its earliest beginnings, still has this unique picture. Occasionally, he books it, just to show that a film made in 1894 still has box office drawing power.

In addition to investing the first projector and giving the first motion picture show in the United States, LeRoy also may properly lay claim to the distinction of putting out the first motion picture and vaudeville road show. I have an ancient handbill which authenticates the fact that on Washington's Birthday, 1895, "LeRoy's Cinematographic Novelty Co." gave an exhibition in Clinton, New Jersey. Here was shown the "Marvelous Cinematographe, showing wonderful and astounding pictures in life motion" (I quote from the bill) "once seen never to be forgotten."

I am told that the first film road show was given in the upper story of a flour and feed store and made such a hit that it was held over for a second night. The total receipts for the

two nights were between \$60 and \$70.

Summed up, he has played a big part in making possible the great industry, which we know today. With that knowledge he may rest content. His testimony and the evidence, which he gathered for the government in the Motion Picture Patents Company litigation a score of years ago, helped greatly to destroy that attempted monopoly. He has always been a fighter and a fighter he will doubtless remain until the end.

Now partially paralyzed and confined to his home in East 17th Street, New York City, he looks forward at his remaining years with high courage, although in almost constant pain. He is past seventy-five. As he reminisces of the years that lie behind, one can see that he feels that if they have not produced wealth for him, at least they show a record of genuine and unusual service for his fellow humans.

Most of all he likes to think of the day, when a certain photographer's apprentice had a dream, which has since come true. For LeRoy is still a cameraman at heart. He retains his prerogatives.

# ROY DAVIDGE FILM LABORATORIES

...

An Exclusive "Daily" Laboratory

...

Quality and Service

6701-6715 SANTA MONICA BOULEVARD  
GRanite 3108



# Additional Tables by the Author of "Cinematographer's Book of Tables"

## THE MUDDLE IN LENS STOP MARKINGS

Many cinematographers have found a rather neat way of dealing with the two major lens stop systems and that is to assume that the so-called Continental stops such as F:4.5, F:6.3, etc., fall half way between the standard F numbers. This is all very convenient and surely no great harm is done thereby. In fact, the practice is more than justified by the saving of wear and tear on the cerebellum, for if we examine the thing at all closely we find a pretty scramble indeed.

For instance, while stop F:2.3 requires  $\frac{1}{3}$  more exposure than F:2, stop F:4.5 only requires  $\frac{1}{4}$  more than F:4 does, yet conveniently enough F:2.8 requires 50% more exposure than F:2.3. But look out—F:4 requires 60% more than F:3.2 does.

In order to salvage some kind of order between the two

major stop systems I have included in the following table on LENS STOPS two series of "Continental" stops. One series includes the hallowed F:4.5 and F:6.3 stops. The other is based on the familiar F:2.3. The latter series seems to me to be the most feasible not only because of the many F:2.3 lenses in use but also because this series bears a more workable relationship to the standard F stops.

The best thing that could happen of course would be to have all lenses calibrated according to the standard system, adding merely the one odd stop at the end of the scale for such lenses as F:3.5, F:2.3, F:1.8, etc.

Another alternative perhaps would be to calibrate all lenses in Aperture Units which indicate without hocus-pocus the relative brightness of the image at various apertures.

## HYPERFOCAL DISTANCES

LENS STOP USED	FOCAL LENGTH OF LENS IN MILLIMETERS							
	25	32	35	40	50	60	75	100
	HYPERFOCAL DISTANCE IN FEET							
1.00	40	64	78	102	160	230	360	640
1.15	35	57	68	89	140	200	313	560
1.41	28	47	55	72	114	163	255	450
1.63	25	40	48	63	98	140	221	392
2.00	20	32	39	50	80	115	180	320
2.31	17	30	34	44	70	100	156	280
2.83	14	23	27	36	57	81	127	228
3.27	12	20	24	31	50	70	111	200
4.00	10	16	20	26	40	58	90	160
4.62	9	14	17	22	35	50	79	140
5.65	7	12	14	18	28	41	64	113
6.53	6	10	12	16	25	35	55	100
8.00	5	8	10	13	20	29	45	80
9.24	4½	7	8½	11	17	25	39	70
11.31	3½	6	7	9	14	20	32	57
13.06	3	5	6	8	12	18	28	49
16.00	2½	4	5	6½	10	15	23	40

Based on an allowable circle of confusion of .002 of an inch.

When a lens is focused at the hyperfocal distance the limits of good definition extend from one-half the hyperfocal distance to infinity.

## LENS STOPS

Relative Trans- mission in Aperture Units	STANDARD LENS STOPS		STOPS BASED ON F/2.236		STOPS BASED ON F/2.309	
	F Value	Relative Exposure Required	F Value	Relative Exposure Required	F Value	Relative Exposure Required
256	1.000	1/4		1/5		3/16
205		5/16	1.118	1/4		
192		1/3			1.155	1/4
128	1.414	1/2		2/5		3/8
102.5		5/8	1.581	1/2		
96		2/3			1.633	1/2
64	2.000	1		4/5		3/4
51.2		1 1/4	2.236	1		
48		1 1/3			2.309	1
32	2.828	2		1 3/5		1 1/2
25.6		2 1/2	3.162	2		1 7/8
24		2 2/3			3.266	2
16	4.000	4		3 1/5		3
12.8		5	4.472	4		3 3/4
12		5 1/3			4.619	4
8	5.656	8		6 2/5		6
6.4		10	6.324	8		7 1/2
6		10 2/3			6.532	8
4	8.000	16		12 4/5		12
3.2		20	8.944	16		15
3		21 1/3			9.237	16
2	11.312	32		25 3/5		24
1.6		40	12.649	32		30
1.5		42 2/3			13.064	32
1	16.000	64		51 1/5		48
0.8		80	17.889	64		60
0.75		85			18.473	64



# TECHNICOLOR UBER ALLES

By H. A.



EVERYWHERE in movieland, be it in the United States, England or the Far East, color seems to be the topic of conversation. Numerous patent applications have been filed, improvements have been made and suggestions proposed, but outstanding in the minds of the cinemaddicts seems to be the exquisite color of Technicolor.

Credit should be given of course to the scientists, research men and art directors, but to cinematographers the first word of praise should go to the cameraman. The grandeur and beauty of "Becky Sharp" is attributable to the skillful and artistic work of none other than the cameraman-perfecto, Ray Rennahan.

As known to the boys of the camera world, Rennahan is a kind, tolerant and friendly individual. His reputation in movieland has brought him to the pinnacle of cinematography. Bluntly speaking, he "broke the ice" for Technicolor with his masterful creation, "La Cucaracha." Rennahan departs for England shortly where we know he will be hailed by another nation. Good luck to you, Ray!

Not so long ago at a preview at the Warner Brothers Theatre an audience of critical cinemagoers were stunned by an enriched and ornamented cinema classic produced in Technicolor and photographed by the artist photographer, William Skall. Although only a short, entitled "Romance of the West," the story and players were hardly noticeable as the eyes of the public were focused upon the scenery of the Grand Canyon and Yosemite National Park. Many of the shots were like paintings, radiating with beauty and realism. Skall is responsible for many of the outstanding shorts. His first feature length production is awaited

with the prediction that it will be a tribute to Technicolor and the motion picture world.

Cameramen are glad to welcome back from Japan Will Cline, the traveling Technicolor cameraman, whose jaunts into Mexico City, Guatemala and the Far East have brought back delightful pictures of Central America.

One of his latest works is a short of the major film studios which ordinarily would seem dull and uninteresting, but photographed in this entrancing color a spectacle unknown even to the people of Hollywood has been produced. Therefore, it is easy to understand why those of other lands will welcome this production. Cameraman Cline is surely on the way up.

Right alongside of these men is to be found W. Howard Greene, also known as "Duke" Green to his colleagues, who is another capable artist. Duke is best known for his latest work entitled "Kibo," which was produced under the supervision of the Marquis de la Falais. It is expected that Duke will soon be seen behind the camera directing the photography on a feature length picture that is sure to be tremendous.

Roy Musgrave, also is right along with the best of his fellows. He is most dependable and efficient.

Among the assistants are Floyd Lee and Paul Hill and others whose care and skill have impressed Technicolor of their importance in the maintenance and operation of Technicolor cameras.

Technicolor, the cameramen of Hollywood salute you, not only as a great organization, but for keen judgment in maintaining so fine a group of technicians.



## STEADY!

### Special Eyemo Tripod *Extra Rigid—Light Weight*

No weaving or swaying in the wind or when hand cranking with this new special tripod for the Eyemo. Smooth working pan and tilt mechanism. Tilts straight down. Up-tilt 45° with 400-foot magazine, 60° without magazine. Legs have single-gear, quick-action clamp and steel spurs. They are 36 inches closed, 72 inches extended. Write for complete specifications and literature.

The Eyemo 35 mm. hand camera is daily covering itself with glory in the hands of explorers, news men, adventurers and scientists. If you need *portability* in movie equipment, as well as a precise, sturdy mechanism, the Eyemo is your camera. Seven film speeds including *exact* sound speed. Available with 200- or 400-foot magazines, and with 12- or 110-volt motor and hand crank in addition to built-in spring motor.

### BELL & HOWELL COMPANY

1819 Larchmont Ave., Chicago; 11 West 42nd St., New York; 716 North LaBrea Ave., Hollywood; 320 Regent St., London (B & H Co., Ltd.). Established 1907



# Eyes Toward Hollywood

By EARL THEISEN

**I**F YOU are discontented with your lot in life, or if you are romance hungry, do not come to Hollywood with your troubles. Hypnotized by the fictitious tales of romance and of fabulous salaries with which the motion picture is identified, the frustrated, the dreamers, and the failures in other walks of life are looking toward Hollywood as a solution of their problems.

From the farms of Iowa, from the offices of big cities, from the homes of the clergy, a steady stream of supplicants pour into the film capital with the hope in their hearts of making a name in the "movies." They want to become extras and live the glamorous life of Hollywood.

All these countless thousands need to start them on their way to "movie-land" is the statement from a friend or relative that: "I think you are a good actor; you ought to be in the movies."

That is enough! Money is borrowed or the savings drawn from the bank, and they're off to romance and wealth. Romance! It's a scarce thing in Hollywood. The sound stages and the heat of the studio lights sweat it out. After a day of fretting and fussing before the camera, the bed and sleep is the thing. Making movies is a business; there are time clocks and getting up early, earlier than in most business. There is make-up to be applied and lines to be rehearsed before the "eight o'clock call."

Hollywood is not a town of parties and a place where you sit on the curb and eat peanuts. Rather, it is a busy place where its citizens look rather tired most of the time.

"Do not come to Hollywood with the idea of entering the movies and making a living at it," states one authority. He knows. He is Campbell MacCulloch, General Manager of Central Casting Corporation, who supplies the extra talent and atmosphere players for the studios. This organization is close to the problem and its registered extra members know that if they must depend on the motion picture for a living they won't eat so regularly.

More than twenty times the number of extras that can be used are registered. The combined number of extras used by the studios each day varies around 533, and there are 12,416 registered and clamoring for a chance—and anything goes in their struggle to get before the camera.

Besides the registered number a large percentage of Hollywood residents to the number of about 25,000 know the ropes and are potential extras waiting for an opportunity; if a person has ever appeared before the camera, or stood near one for that matter, he calls himself an actor.

In 1934 only 363 persons in the extra ranks earned as much as \$900 a year. That means \$17 a week. Fewer than 120 persons made more than \$29 a week.

Of course, a few earned good salaries; however, the vast majority worked only a day or so in the entire year.

Regardless of this, day after day, they continue to haunt the studio gates and the Central Casting Office reception room, and day after day new recruits appear. The "extra racket" is a big gamble and the dreams of the possible chance for a "break" drags them back each day.

But the "break" never comes. Campbell MacCulloch claims from the facts at hand that "an extra has as much chance for stardom as a penny in an open field has a chance of being struck by lightning."

Certainly new talent is needed in the motion pictures, but it is not recruited from the extra ranks. Out of 47,000 extras handled by the Central Casting Corporation only sixteen attained recognition in ten years. That is a fact gleaned from the files.

The extra possibly may have talent, but like the clerk in any line of business, he has a routine job to do and is detailed to do a certain task. Have you ever heard of a clerk being taken from his files and given the president's job? No! Business, whether "movie" or otherwise, is not conducted that way. The extra is a human automaton.

Life in Hollywood is no less real because it is in movieland. Reality is just as cold and glamour is always just beyond the horizon, and perhaps because of the unrelenting competition and stark struggle among the extras, the romantic glamour identified with movie-making is impossible. Tonight, the aspiring film star will go hungry to spend the last fifty cents for a clothes press. Tomorrow, he will battle with 12,000, or more, other aspirers for a chance at the available 400 jobs.

He must dress well; his clothes are his tools. The stars spend many thousands of dollars a year for clothes and the extra appearing in the same scene side by side with a Menjou, or a Crawford, must appear as well dressed, otherwise the result will be incongruous.

Money does not help. The tendency of the casting directors is to give the needy a chance, however, first of all ability and experience and definite requirements in appearance and "type" are needed. Money does not buy those things.

A few years ago a part could be bought; but that was a few years ago.

That competition is keen may be judged by the fact that Central Casting has forty-two telephone trunk lines, over which is received over 11,000 calls a day. Mind you, that is not eleven hundred, but eleven thousands. Two months ago only 6,500 calls a day were received.

An extra trying to call Central Casting must try, on an average, fifteen times before the call goes through. Many times an actor will dial as many as fifty times during the busy hours of three to six in the afternoon, when the following day's casting is done.

The telephone engineers have tried to remove this congestion over the lines, but there is no solution to the problem. More phones will not do it.

The calls are handled with great dispatch. Four men do the casting. Each of these men has a number of sheets that specify what talent is needed by the various "companies" shooting at the studio. These men know the characteristics, extent of wardrobe, and ability of most of those registered, so when Mary Jones calls in, her name is announced aloud. If one of the four men can use her for a part, the operator is told to "put her on."

Then Mary Jones is told to "report to Stage 12, Director Cummings, eight o'clock, wear evening dress, number 26 pan make-up. That is all." That is the extent of the conversation, there is no "how is the family," or "how was the party." Just an automatic machine-like conversation. If Mary Jones can not be used she is told to "try later." In order to save time the Central Casting operator simultaneously announces the "try later" to a number of incoming calls after the names have been announced. The operator then plugs out the whole group and starts over.

Central Casting Corporation was organized by the eight major studios on January 1st, 1926, for the purpose of supplying extras and for bettering conditions. The studios bore the entire expense of the organization. It is now the biggest employment agency in the world and its services are rendered free to the employees. The studios employ extras only through this agency.

Campbell MacCulloch, an old-timer in Hollywood, was taken from a Federal job on the National Labor Board and placed in charge of Central Casting on September 17, 1934. He is a Scotchman and a twinkling-eyed, grand fellow, and particularly well suited to the task of keeping harmony and still sit on top the pile. Now his job is to please all the extras as well as the potential extras. He deals with all nationalities, noblemen and peasants, brigadier generals, doctors, famous old-time theatrical headliners, Mexican revolutionists, knife swallowers, Italian aviators, and . . .

Too, there are young girls with inflamed imaginations who have listened to the foolish flattery of friends and relatives.



Thousands of them drift into Hollywood and haunt the studios and besiege the Central Casting.

As for the moral side. There are persistent rumors that ambitious girls have used questionable methods and of charges of bargaining for a chance. The idea persists with women that they are equipped to so bargain. Such things happen in all lines of business where women are employed, and no doubt such things occurred in the past in the motion pictures, but under the present set-up it is unlikely. To avoid such situations, Campbell MacCulloch on October 25, 1934, organized an Advisory Council which supervises and aids in the activities of Central Casting.

On this council are all the clergy of Hollywood, the Chairman of the Community Chest, a policewoman, the past foreman of the Grand Jury, a former president American Federation of Woman's Clubs, a noted professor of economics, and others. This group is active in the affairs of casting. Every time a complaint is heard, it is assiduously investigated.

To expedite casting, Campbell MacCulloch is mechanizing the routine. He is installing mechanical servants that select the types required for a particular studio call. All the registered extras are classified and their qualifications and characteristics listed on cards. When a studio call for talent comes through, the cards are placed in the machine. The machine picks out the cards of the extras having the particular requirements desired. For example, Paramount sends in a call for ten Turkish women who can play Turkish cymbals, speak Turkish, who have long black hair, round features, and dark dreamy eyes. As the cards go through the machine, those cards charting the above named characteristics and abilities are sorted out.

On the cards are listed 540 possible qualifications. The dis-

qualifications are identified by number on the card and the extra having certain qualifications is given a punch mark through that particular number. The machine selects by the punch marks. Nothing could be more forthright.

Tests with teletype machines for transmitting the business between the studios are being conducted. One teletype machine has been installed between Metro-Goldwyn-Mayer and Central Casting.

Everything is being done to bring order out of chaos and to put casting on a business basis, but it is no easy task to confine to business regulations the glamour that is falsely identified with the picture-making and the life of an extra, and the senseless optimism of thousands who hope for a break. Note for example the Detroit woman who put her two daughters, one eight and the other ten, alone on a bus and sent them to Hollywood to Central Casting with instructions "to put them in pictures."

The mother was certain the children had only to be seen. They were sent back to Detroit under the sponsorship of the Travelers Aid Society. Later this mother wrote that they were greatly improved and that she was sending them back again. The Detroit authorities had to stop them. That was in May of this year.

More than 30,000 letters a year from all over the world, with photographs enclosed, pour into Hollywood asking for a chance, it is estimated.

The advice from those who know is "do not come to Hollywood with the idea of breaking into the movies." People here who know the ropes can't do it, so what chance has an outsider.

But what does happen to those who do come? Well, you'll find them on the side street eating places, the prospective Juliets slinging hash, and the prospective Romeos washing dishes.



## The Work Sheet

### Estimating the Cost of a Motion Picture Production— The Work Sheet

By PAUL R. HARMER

(Reprinted from a recent edition of *The International Photographer of Hollywood*)

Office rental.  
Office equipment rental.  
Office heating and cooling.  
Office telephone rental and tolls.  
Office telephone and stenographic salaries.  
Office accounting salaries.  
Office supplies.  
Office transportation.  
Office meals.  
Office miscellaneous expense.  
Studio rental.  
Production supervisor salary.  
Story cost.  
Continuity writer salaries.  
Typing and supplies.  
Research expense.  
Experimental expense.  
Film and screen tests expense.  
Director salary.  
Stars' salary.  
Supporting cast salary.  
Extra talent salary.  
Musical director salary.  
Copyist and supplies—salary.  
Music license fees.  
First assistant director.  
Second assistant director.  
Script clerk.  
First property man.

Assistant property man—salary.  
First grip.  
Second grip.  
First cameraman.  
Second cameraman.  
Extra cameraman (process and seconds).  
Still man.

Motion picture camera equipment rental.  
Still picture camera equipment rental.  
Blimps, perambulators, cranes, reflectors, diffusers, parallels, centuries, etc.—rental.  
Process projection machine rental.  
Process projection machine operator's salary.  
Process screen rental.  
Contract work, special process.

Sound recording engineer's salary.  
Assistant sound recording engineer's salary.  
Assistant sound recording engineer's salary.  
Sound recording equipment rentals.  
Sound equipment—miscellaneous expense.  
Sound recording royalties.

Art director's salary.  
Draftsmen's salaries.  
Set designing material and blue prints expense.  
Set rentals and location fees.

(Turn to Page 29)

**Hollywood**  
**MOTION PICTURE EQUIPMENT CO. LTD.**  
645 NORTH MARTEL AVE. CABLE ADDRESS ARTREEVES  
HOLLYWOOD, CALIFORNIA, U.S.A.

# Is the Camera the Royal Road to Director-hood?

By HERBERT ALLER

If one were to ask me how he could become a director of motion pictures, my reply would be: "First become a cameraman." It is only reasonable to expect that the interrogator might ask: "Why?" To this there would be any number of answers, which will always remain the same, and therefore, I am setting forth what I believe to be the beliefs of all cameramen.

The man behind the camera not only "sees all and hears all," but also learns to know all. This is by no reason of a strange move of fate, but solely because he is placed in a position where he can benefit from the practical experience of all. As a further answer, I might say even that there is no school for motion picture directors.

Although it is not necessary to begin at the very bottom as a day laborer or a property man, it is essential that one place himself in a position where he can benefit by watching the work of others and thus train himself with practical experience. Now, then, who else but the cameraman has the opportunity to partake in the functions that tend to establish the basis for calling ones' self a director?

The cameraman has put many years into the business. He is compelled to be observant, diligent, and furthermore, he is the one to whom the director will constantly turn and ask: "What do you think?"

Sooner or later the cameraman realizes his responsibility and begins to "work with the show" as though he were the director's right hand man. This close relationship to the producer also gives him an opportunity to observe the interpretations of different roles as given to the screen by the greatest stars, thus a definite imprint is left upon his mind so that he can at the opportune time mold a new actor or actress to fit a characterization they have never created.

Behind the camera he has also learned to watch a production and the script without becoming confused and gradually becomes instilled with sufficient confidence, the greatest attribute of any famous director.

His work enables him to follow a production as told in sequence form. Applying his energy to this, he becomes so engrossed in his work that he soon begins to sense the value of each scene, its importance and significance. Thus he becomes not only an observer and student, but also a critic. In other words, his training never ends. Unconsciously he is preparing for his own advancement.

Assuming that he knew nothing about directing, it is nevertheless impossible to take away from the cameraman the fact that with his knowledge of trick photography, fades, dissolves and wipes he can, without doubt, visualize the artistic and dramatic effects that can be produced to fit a picture from what he has already learned in his own profession.

We must not overlook the fact that a cameraman once given the chance to work with directors such as Cecil B. DeMille, Lubitsch, Von Sternberg, Capra, LaCava and Borzage, not mentioning the other numerous capable ones, acquires an unusual degree of versatility. For example, he has seen in the making a Borzage picture, such as "Seventh Heaven," its pleasing youthful conflicts; a Lubitsch picture, such as "Trouble in Paradise," with its supreme subtle touches; a Von Sternberg production with that pictorial splendor which never fails to include the dynamic characterization of the principal player. He has learned the meaning of production value. He understands how spectacles are

produced, how a scene if subtle must always be confined to its limitations and how romance on the screen can be made pleasing to even movie censors.

In brief, he learns not to exceed the bounds of limitation. Moreover, and not to be overlooked, is that fact that the cameraman learns not only how to direct but how to handle people, how to treat the temperamental star and not disregard the need of the cooperation of the unknown property man who is a cog in the wheel that turns the cinema creations.

Needless to say that sooner or later he perceives the line of demarcation between good and bad dialogue. Hearing it day in and day out he acquires a new sense of feeling for human emotion that enables him to understand the use of proper words that will always satisfy an audience.

To prove that the contentions of the writer are well founded we turn to the history of some of the cameramen. What do we find—Lee Garmes, a master cameraman, who acted as associate director on the two most daring films by the master writers, Hecht and McArthur, now in England directing for Korda. If there is something higher than that position, Garmes will be there, as he is so well qualified.

Karl Freund, a cameraman only a few years ago, now not only is a capable and successful director, but is recognized by his colleagues as an important figure in the movie world, however, not so for any unknown reason. His last work, "Mad Love," served to convince all that he is a skilled director.

George Stevens, a former cameraman, now a director, recently completed "Alice Adams" for RKO. Critics say that the direction by George Stevens was exquisite and speak of his sureness of touch, the absolute rightness of all his scenes, whether they be casual, dramatic, domestic or comedy. Who else but a former cameraman could be so versatile.

Joseph Von Sternberg, a former cameraman, now a world famous director, today still looks at the lights and at the sets with his eagle camera eye before the shooting commences, although his cameraman, Lucien Ballard, is an ace photographer.

The late Georgie Hill was a cameraman; Phil Rosen, Victor Fleming, Ernest Schoedsack, Irwin Willat and others were also cameramen.

It is to be expected in the near future that cameramen such as Hal Mohr, Sol Polito and Leon Shamroy will be elevated to directorial positions, if they choose to give up the camera. This is not an unreasonable expectation; their capabilities to direct are becoming more obvious each day. Such men have served as becoming more noticeable each day. Such men have served for their well trained cinema minds which Hollywood quietly salutes when their pictures are flashed on the screen.

The cameraman is able to distinguish between pure and simple acting and "mugging," commonly known as over-acting or letting the actor play the scene in front of the camera, where he twists and squirms his face to produce what he believes to be expressive of the characterization.

The old time comedy style is a good example of what the cameramen of today rebels against. Reason is replaced by instinct; he senses it with absolute sureness and seldom ever misses in suggesting the proper changes. His years behind the camera have enabled him to advance with the times. The cameraman knows that performing for the screen today is not what it was yesterday.



**MAX FACTOR'S**  
NEW  
*Satin Smooth*  
**LIQUID FOUNDATION**  
A REVELATION IN FACIAL MAKE-UP



# What Are Educational Films?

By P. C. SMETHURST, A.R.P.S., F.A.C.I., F.R.S.A.

The steady increase in the number of schools using films and projectors as a supplementary aid to learning has resulted in an increased output of "educational" films to comply with the demand, for producing firms are never slow to find new markets, but one may reasonably be entitled to ask whether, after all, the films being at present used for educational purposes are entirely suitable.

An examination of the average producer's list of "educational" films shows that in many cases the films available are nothing more nor less than interest films—probably old scenic shorts and some specialized subjects as well—that have been reduced to 16mm. and hired out in the old familiar way. It is very doubtful whether such films are actually suitable for the purposes of the teacher, and a brief review of the necessary constitution of educational films may be of general interest in this connection.

One thing, to begin with, is obvious. Educational films should be intended to appeal to a specialized audience, so that the ordinary technique used in shorts for public exhibition can hardly be used. In a normal auditorium, the audience must be kept interested by frequent changes of angle and shot, or they will get restless. In the school, the film is shown, not to amuse the children, but to explain something to them, and the explanation must be fully complete.

This implies that educational films are essentially long-winded in their nature if they are to be useful, for each shot must remain long enough on the screen for the least intelligent child in the room to grasp its content fully. This fact alone leads one to wonder whether the existing educational film libraries are really suitable for their purpose.

In this connection a second point of equal interest arises. What exactly is the place of the film in the class-room? As it is clear that the teacher can never be fully supplanted, and lessons given by canned instruction through the film and sound gates, there is every reason that at the present time a film should be subservient to the needs of the staff. And just how many educational films as produced today can make that boast?

In the school-room, too, there may be twenty to twenty-five children, all of completely differing mentality, and of varying ages. The fact that they are grouped together as one class is unfortunately to guide to their quickness in grasping a subject demonstrated by film. The difficulties of appealing to any child and every child are consequently enormous, and for every point of view it is desirable that a film should be used for the purpose of demonstration only, the staff being left to draw the conclusions and round off the lesson into a united whole.

The writer is fully aware that this point of view is not held by film workers, yet the prejudice so often found against films by school teachers is certainly due, at least in part, to this fact. As educational films stand at present, they are an intrusion on the normal working of the class, and as such are more of a hindrance than a help in the average case.

Quite apart from this the range of subjects that figure in catalogues of educational films is very limited. We have the well-known shorts of scenic subjects (which are quite incapable of showing useful geographic facts because they are intended for the eye only), the long series of animal and ethnological films that skim the surface of the subject, and the films of everyday work in the manufacturing of various articles. Not one of these films really demonstrates sufficiently clearly what it sets out to do, but is designed to arouse interest rather than instruct.

The only real educational films that exist at the present time, in fact, are those in the medical series, and the reason is that a doctor must have exact information about medical facts. These films show facts in no uncertain way, and to see one of them is quite a revelation. In one film the writer was shown of an operation, every single step in the process was clearly shown, and the intense fascination of the filmic technique employed was just as interesting as the actual operation portrayed.

There is, in spite of all these difficulties, one thing for which the producers may be thankful: there is no real need to have sound-films in schools. In fact, the silent film has a great point of advantage in that the teacher can speak during the progress of the film and clear up difficult points. A commentary during a

sound-film cannot take into account all the difficulties and objections of children all over the world, however involved and detailed it may be, and it is here that a few words from the teacher concerned are of infinitely greater value than a torrent of sound from the reproducer.

The writer's contentions regarding educational films may thus be summed up under the following heads:

1. Educational films must demonstrate their subject fully.
  2. They must be capable of fitting into the texture of the lesson without being obviously out of place.
  3. All educational films should be specially produced with that purpose and not cut down from public exhibition prints.
  4. The range of subjects shown should be greatly widened. Science and mathematics should be better represented and scenic shots supplanted by genuinely geographical films.
  5. Silent films are on the whole just as useful as sound films.
- Mathematics and science are mentioned above. On these two subjects alone, there is a vast world open for the film producer, so long as he is content to let his films serve as demonstration only. Subjects should naturally be confined to those which cannot easily be shown in the laboratory or class-room and trick work with the camera will be essential in many cases.

The writer is personally well prepared to believe that children who have been shown the beauties of mathematical curves by direct demonstration will be much more immediately concerned afterward with the symbols and equations connected with them. For, despite all that the artists may say, all curves have an immediate and direct connection with mathematical formulae.



## CAMERA & PROP RENTALS

Camera Supply Co.  
1515 Cahuenga Blvd.  
Hollywood, Calif.

Ruddy Geraus, Manager  
GLadstone 2404

Nite Phone GLadstone 6583  
Cable Address — "CAMERAS"

# Photographie mit ultrarotem Strahlen By Von W. Rahts, Berlin—From Camera of Luzern und Zurich (Photography With Infra-Red Rays)

Translation by H. O. STECKAN, Hollywood



This Picture and One Opposite from Radio Tower, Berlin-Witzleben. Taken in September, 1933, at 4 p.m. Blende F:25.

This on Agfa Extra Rapid Plate. Exposure One-tenth Second.



PHOTOGRAPHY with ultra-red rays is not only used now for scientific purposes, but finds usefulness more and more in other fields. In this following discussion, the properties of ultra-red rays in their relation to their steadily enlarging application to photography in general will be considered.

Light, as it affects the human eye, has a wave-length of approximately from 4000 to 7500 Å (0,00004 to 0,00007cm); the shorter and longer waves are invisible for us. While it has long been possible to convert ultra-violet rays into visible light—fluorescence—and thus photograph with them, it is a comparatively recent achievement to utilize the rays at the red end of the spectrum—the ultra-red rays\*—photographically. The photographic industry has found a way to sensitize, so as to make silver-bromide receptive now to ultra-red rays.

Pure bromide of silver is only affected by violet and blue rays; but color-elements may be added to the photographic emulsion, which make the silver-bromide sensitive to rays with longer waves, such as green, yellow and red. Today one can even sensitize silver-bromide for the ultra-red rays, so that it is now possible to take pictures by means of the light of the invisible ultra-red rays. In Germany ultra-red sensitized plates\*\* are tagged with a number, that indicates the wave-length for which they are primarily intended, to-wit: 730, 810, 855 and 950. For example, the last is most sensitive to the 960 x 10-7 cm wave-length, although the sensitivity extends to something like 1200 x 10-7 cm. In addition there is also a cinema-film, designated R-Film, whose sensitivity approximates a 730 plate. It is also adapted to intimate studio uses.

As light rays are bent less by fog the longer their waves, long-waved light penetrates mist or fog better than short waved light. The best known application of this physical fact is found in the general use of red lights for danger signals.\* Ultra-red rays penetrate fog particularly well, on which fact rests the prime development of ultra-red photography. Where the eye is unable to recognize anything, there the ultra-red sensitized plate "sees" a great deal: distant mountains and shadows upon the land, when photographed from high altitudes, are picked up perfectly by infra-red plates\*\* (note illustrations 1 to 4).

The energy of the ultra-red rays being decidedly limited (all visible light must naturally be eliminated with a filter) a very long exposure is necessary to register an image on the plate that can be developed. Moreover, it is necessary to call special attention to the fact that ordinary photographic objectives are not adjusted to ultra-red rays. Hence it is imperative to focus the matted sector sharply on a very distant point—"unendlich fernen Punkt," says the German, which literally translated is "infinitely distant point"—with a strong red filter before the objective. This infinite focus, impossible to photography with visible light, must be utilized in all ultra-red exposures. To screen out the visible light, in outdoor exposures, it is desirable to use a very strong red-filter (such as Agfa No. 42) or even a black-filter (Agfa No. 83, 84, 85). The accompanying Table No. 1 gives the differentiating factors of these filters, as, applied to the most useful plates. Under foggy conditions it is necessary to increase exposures from two to five times.

In general irradiation is impossible with ultra-red rays. Human and animal bodies in particular reveal no luminosity or fluorescence under ultra-red rays; on the other hand, there are certain colors and printers' inks impervious to visible light yet penetrable to ultra-red rays. Among other things, here is where ultra-red photography open up brand new realms, with highly interesting possibilities.

Besides the surprising power of penetration of the ultra-red rays, Illustrations 5 and 6 also reveal their false representation of color-values. The sky appears dark in contrast to the white



\* See L. Rothaas, Z. VDI Vol. 73 (1929), Page 1859; C. Mueller, H. Theissing & H. Kiessig, Z. VDI Vol. 76 (1932), Page 925.

\*\* Agfa manufactured plates in Germany are called "infra-red" plates.

\* In Physics it is customary to speak of ultra-red; while in photographic circles the term infra-red is mostly used.

\*\* Manufactured by I. G. Farbenindustrie, AG. (Agfa).



This on Agfa Infra-Red Plate 810  
with Filter 82. Exposure 10 Sec-  
onds.



of the foliage. This is due to the fact that leaf-green strongly reflects the ultra-red rays, while the blue sky absorbs few of the ultra-red rays.

TABLE No. 1

Protracting Factors for Isochrom Film 18/10° DIN Without Filter.		Agfa Filter No.			
Plate Location		42	83	84	85
Agfa Infra-red Plate 730.....	50				
Agfa Infra-red Plate 810.....	120	120	170		
Agfa Infra-red Plate 855.....	50	250	340	2600	

### SPECIAL APPLICATIONS

For cinematography, it is now possible to make highly artistic night or moonlight shots, by means of these false color-value representations. When photographing a claudes ssy through a red filter, using an Infra-red Plate 730, the heavens come out black and the trees white; all white objects assume a ghostly appearance, while the dark ones are even darker. The viewer gets a perfect picture of a night scene, such as if taken under moonlight conditions would have required an exposure hours long. Yet by this method the same effect can be obtained in bright sunlight in the fraction of a second.

Since ultra-red photography—in contrast to ordinary photography—does not reproduce objects with the same luminosity-value that the human eye sees them, it may be used, under certain circumstances, to mask or cover up illusions and trickery. Of course, at this stage, one cannot yet lay down any definite rule of procedure. All must be worked out experimentally, wherever such use seems desirable.

In like manner, ultra-red photography may now be applied to the field of micro-photography, as revealed in Illustrations 9 to 11. Here, among other considerations, it succeeds in emphasizing the peculiar properties of certain material aspects (for example Chitin) which under ultra-red influences prove to possess absorption-variability with marked regard to the reflection-powers thereof.

A further application of ultra-red photography may be found in the so-called field of "Dark Photography." But under this head, it must not be inferred that exposures can be made without any light energy at all. What it implies is that with the aid of a particularly powerful light source whose luminosity (visible to the eye) is absorbed by a filter, a photographic result is accom-

plished by means of the penetrating ultra-red rays (invisible to the eye).

Needless to say, for the reasons stated above, the results obtained in photographing persons in this manner are startlingly unreal. The face registers chalk-white; the eyes lie deep in their sockets, which function like deep holes. But perhaps this phenomenon may prove useful ultimately in furthering criminal investigations and the study of psychological and spiritistic research.

Heated bodies send out volumes of ultra-red rays, which only tend to become apparent under visible light at a temperature of 500 degrees. Accordingly, experiments have been made, using ultra-red photography to photograph the human body whose temperature is well under 500 degrees, for the purpose of developing a new science of ultra-red thermometry in its relation to the entire field governing the subject.\* To date it has only been possible to experiment in the realm up to about 350 degrees. All efforts to photograph a glowing furnace, or to register rising fever temperatures have proved futile for the time being. To do this it would be necessary to expose even super-sensitized plates upwards of a month, to get a satisfactory record of the human body at around 300 degrees on an ultra-red photographic plate.

\* See K. Hencky and P. Neubert, Naturwiss. Volume 18 (1930), Page 392; also Forschg. Ing.-Wes., Volume 2 (1931), Page 267.

### SUPER-SENSITIZATION

For example, a super-sensitizing of the ultra-red plates is recommended where the time of exposure is to be lowered. For this purpose it is well to immerse the plates in a 0.5% solution of sodium (crystals) for ten minutes, to which 0.5% concentrated ammonium has been added. Temperatures should be kept down (not over 12 degrees). Thereafter, put the plates in Methanol for a minute without rinsing, and then dry them as rapidly as possible. It goes without saying that all these processes must be done in a darkroom.

### DEVELOPING EXPOSURES

Infra-red plates may only be developed in a darkroom, under dark green light, such as Agfa Filter 108 or the like. It is also possible, if one cares to acquire special lighting equipment, to use a lamp (Glimmlampe) in connection with Agfa-filter 114 or its equivalent. The developing can be done with Rodinol or the customary Metol-Hydrochinon developer.

Two Views Pfaender (Grogenzer  
Woods). Taken in Mist, April 16,  
1933, 3 p.m. Blende F:18.



Left—On standard Agfa Film Pack.  
Exposure One-half Second.

Right—On Agfa Infra-Red Plate  
with Red Filter. Exposure One  
Second.

# Recent Photograph and Sound Patents

By ROBERT FULWIDER

*Registered Patent Attorney*

2,006,464—Lens Mount for Cameras. Grover Laube & Edwin Kaufman, Assignors to Fox Film Corp.

2,006,719—Constant Speed Film Feeding Mechanism. Arnold Poulsen, Copenhagen, Denmark.

2,006,914—Film Spacing in Stereoscopic Apparatus. Maurice Fayolle, New York, N. Y.

2,007,018—Projecting Mechanism. Norbert La Porte, New York, N. Y.

2,007,153—Silencer for Moving Picture Booths. Wilber S. Boggs, Las Animas, Colo.

2,007,188—Film Handling Apparatus. W. D. Foster, assignor to Kinatome Patents Corp.

2,007,282—Method of Producing a Multicolor Screen for Photographing Color Pictures. Franz Muller assignor to Durkopp-Werke A. G., Bielefeld, Germany.

2,007,283—Method of Producing Multicolor Photographic Pictures. Franz Muller, assignor to Durkopp-Werke A. G., Bielefeld, Germany.

2,007,316—Production of Corrected Color Selection Positives for Color Photography and Multicolor Printing. Louis O. Van Straaten, Biggerkerke, Netherlands.

2,007,468—Film Magazine and the Like. Ralph G. Fear, Los Angeles, Cal.

2,008,020—Focusing Device for Cinematographic Apparatus. Fred Jackman, assignor to Warner Bros. Pictures, Inc.

2,008,033—Reproducing Machine for Film Records. Martin Nystrom, assignor to United Research Corp.

2,008,097—Phonographic Apparatus. Ellsworth Cook, assignor to R. C. A.

2,008,110—Reversible Magazine Camera. Gordon B. Scheibell, New York, N. Y.

2,008,239—Cinematographic Color Film Bearing a Sound Record. Chas. Bonamico, assignor to Dufaycolor, Ltd., London, England.

2,008,395—Goffering Machine. Isaac Kitroser, assignor to Keller-Dorian Colorfilm Corp., N. Y.

2,008,402—Film Driving Mechanism. George P. Regan, Oakland, Calif.

2,008,435—Photographic Film & Laminated Protective Coating therefor. Mary H. Caruso, Woodside, N. Y.

2,008,439—Method & Apparatus for Moving Films Through Liquid Baths. Harris N. Ensign & Harry A. Hanson, assignors to Paramount Productions, Inc.

2,008,450—Manufacture of Sensitized Photographic Emulsions. I. M. Heilbron & F. Irving, assignors to Imperial Chemical Industries, Liverpool, England.

2,008,457—Process for Obtaining Three-color Films. Paul Lessertisseux, Paris, France.

2,008,700—Reconditioning of Talking Film. J. H. Hammond, Jr., Gloucester, Mass.

2,008,701 to 2,008,712 incl.—Sound Reproducing and Amplifying. John H. Hammons, Gloucester, Mass.

2,008,714—Gear Train for Motion Picture Projectors. Arthur J. Holman, East Orange, N. J.

2,008,876—Device for Starting & Stopping on Projection Apparatus. Otto Rehder, Hamburg, Germany.

2,008,878—Projection Machine. Albert B. Scott, Los Angeles, Calif.

2,008,881—Motion Picture Projecting & Sound Reproducing Apparatus. LaVern E. Thomas, Los Angeles, Calif. assignor to E. R. P. I.

2,008,904—Multiple Printer for Motion Picture Films. R. W. Fishback & Bruce Burns, assignors to Hughes Industries Co. Ltd., Houston, Texas.

2,008,924—Shutter for Motion Picture Cameras. Freeman H. Owens, N. Y.

2,008,938—Synchronized Shutter Mechanism. Louis Tolhurst, assignor of one-third to Kenneth Peach and one-third to Hal Roach, both of Los Angeles.

2,008,973—Motion Picture Apparatus. Fordyce Tuttle, assignor to Eastman Kodak Co.

2,008,988—Film Footage Meter for Motion Picture Cameras. Joseph Mihalyi, assignor to Eastman Kodak Co.

2,008,989—Apparatus for Duplicating Goffered Film. Oran E. Miller, assignor to Eastman Kodak Co.

2,008,994—Film Magazine. Howard Sauer, assignor to Eastman Kodak Co.

2,009,053—Camera. Alvin L. Mayer, Louisville, Ky.

2,009,424—Color Photography. Martin Zeller, assignor to Robert Rochling, Munich, Germany.

2,009,442 - 2,009,443—Photographic Apparatus. W. D. Foster, Washington Township, Bergen Co., N. J.

2,009,532—Motion Picture Film Fire Eliminator. Joe P. Taylor, La Porte, Texas.

2,009,689—Method of Producing Films in Natural Color. Wm. T. Crespinel, assignor to Hughes Industries Co. Ltd., Houston, Texas.

**Scheibe's FILTERS**

*SINCE 1916*

**In World-Wide Use**

**produce Moonlight and Night Effects in Daytime-Fog Scenes-Diffused Focus, and many other effects With any Camera - In any Climate**

**George H. Scheibe**

**ORIGINATOR OF EFFECT FILTERS**

**1927 WEST 78TH ST. LOS ANGELES, CAL.**

HOLLYWOOD STUDIOS USE THEM IN EVERY PRODUCTION



## THE WORK SHEET

(Continued from Page 23)

Set construction labor.  
 Set construction material.  
 Set construction in miniatures.  
 Set construction—scenic and painting.  
 Spot light platform's labor.  
 Spot light platform's material.  
 Set dressing rentals.  
 Set dressing—labor.  
 Set dressing—manufactured.  
 Set dressing—lost and damaged.  
 Set watchman.  
 Set striking labor.  
 Transportation for men and materials.

Set lighting generators.  
 Set lighting current.  
 Set lighting equipment rentals.  
 Set lighting setting up labor.  
 Set lighting operation labor.  
 Set lighting striking labor.  
 Set lighting globes, carbons, replacements and purchase.  
 Set lighting transportation for men and equipment.

Diving equipment, tanks, wind machines, lighting machines, rain, snow, fog, airplane and special effects—rental.  
 Extra labor for operating special effects.  
 Material for special effects purchased.

Wardrobe designer—salary.  
 Wardrobe tailors.  
 Wardrobe checkers.  
 Wardrobe material purchased.  
 Wardrobe rentals.  
 Wardrobe—lost and damaged.  
 Wardrobe purchased.

Hair dresser—salary.  
 Make-up artist—salary.  
 Make-up material rented.  
 Make-up material purchased.

Working props—rentals.  
 Working props—manufactured.  
 Working props—purchased.  
 Working props—lost and damaged.

Horses or animals rented.

Saddles, vehicles, harness, etc.—rented.  
 Feed for animals.  
 Caretakers' salaries.  
 Transportation for caretakers and animals.

Picture negative—raw stock.  
 Picture negative—developing.  
 Picture positive—raw stock.  
 Picture positive—printing and developing.  
 Sound track negative—raw stock.  
 Sound track negative—developing.  
 Sound track positive—raw stock.  
 Sound track positive—printing and developing.  
 Composite print—raw stock and developing.  
 Still negatives.  
 Still prints.  
 Titles painted, made up and photographed.  
 Stock shots purchased.  
 Optical printing and wipe-offs, salaries and expense.  
 Sound dubbing salaries and expense.

Editing salaries.  
 Editing equipment—rented.  
 Editing—miscellaneous expense.

General transportation for company on location.  
 Standby cars and trucks.  
 Special cars and trucks.  
 Special cars and hauling.  
 Steamship, railroad and airplane fares.  
 Hotel expense.  
 Meals at studio for overtime work.  
 Lunches for location.

City license.  
 Negative fire insurance.  
 Compensation insurance.  
 Special insurance.  
 Petty cash.  
 Unclassified expense.  
 Preview expense.  
 Release prints.  
 Duplicate negatives.  
 Shipping expense.  
 Exploitation expense.

Added expense throughout production because of overtime.  
 Sales expense.

## MOTION PICTURE NOTES FROM INDIA

(Trade Commissioner GEORGE C. HOWARD, Calcutta)

**Indian Pictures**—The encroachment of Indian pictures on the release outlets in the country is growing more apparent each month. The situation is particularly serious in Bombay, where, according to a check up of the announced products from England and America for 1935, some 1,923 pictures will be unable to get playing time in Bombay Theaters.

As an example, the Roxy Theatre, built about two years ago at a cost of Rs. 180,000 for showing American pictures has just "gone Indian" on an offer of Rs. 4,000 a month rental and a very large bonus for a three year contract, and is showing Indian pictures exclusively. Three other large theaters in Bombay which have to date been "foreign" are leaning toward a changeover.

In many parts of the country Indian producers are guaranteeing rentals to theater owners in order to get release dates.

A recent check up by an American company here on the 37 Indian fan magazines on the market, show 13 Indian pictures advertising for playing dates during the past four months.

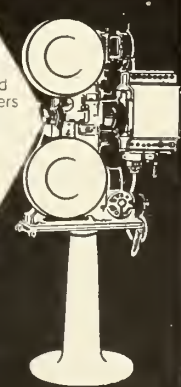
**Production**—There are approximately 40 producing studios in the country, according to the most reliable available list. These studios rent their machines on a flat yearly basis and turn out their scheduled production. In addition to their own production, they are renting their studios and machines to small producing companies, quickies, etc., on a footage basis.

A number of Indian companies have made excellent profits on their pictures during the past year or so and this has given rise to a large number of individuals going into the picture business to make one picture using the leisure time of directors, actors and staff of the studios, and picking up popular Indian plays on small royalty or outright purchase basis.

A year ago a long run of two or three weeks for an Indian picture was considered a very outstanding event, but many pictures during the past year have run two to three weeks and in some cases more, and there is a picture in a Calcutta theater at present which has been running for eleven weeks, with no sign of a falling off in attendance.



**EVERYTHING  
PHOTOGRAPHIC**  
 for Professional and Amateur  
 New and used. Bought, sold,  
 rented and repaired. Designers  
 and manufacturers of the  
 H.C.E. Combination Lens  
 Shade and Filter Holder  
 for any size lens.  
 Send for bargain catalogue  
**Hollywood Camera  
Exchange**  
 1600 Cahuenga Blvd.  
 Hollywood  
 Tel.: HO-3651  
 Cable:  
**HOCAMEX**



# INTERNATIONAL CLASSIFIED ADVERTISING

Brings results—Rates 45 cents per line—minimum charge one dollar per insertion. For Rent—For Sale—Wanted—For Exchange, etc.

## FOR SALE OR RENT—CAMERAS

**FOR SALE OR RENT**—Mitchell and Bell & Howell silenced cameras, follow focus. Pan lenses, free head, corrected new aperture. Akeley, De Brie, Pathe, Universal, Prevost, Willart, De Vry, Eyemo, Sept, Leica. Motors, printers lighting equipment. Also every variety of 16 mm. and still cameras and projectors. B & H Cameras with old type shuttles silenced \$150. Everything photographic bought, sold, rented and repaired. Send for our bargain catalogue. Hollywood Camera Exchange, 1600 Cahuenga Blvd. Phone HO. 3651. Cable, Hocamex.

## FOR SALE—CAMERAS AND EQUIPMENT

**REAL BARGAINS** in 16 and 35 mm. movie equipment and still cameras. Newest types cameras and projectors in all popular makes. Save money on film, lights, lenses and all essential accessories. Our 36 years of experience stands back of every sale. Before you buy, send for our new bargain booklet. Burke & James, Inc., 223 W. Madison St., Chicago.

**NEW TYPE SUPER PARVO DeBRIE** ultra silent with built-in motor, automatic dissolve, pilot pins, anti-buckling device. Four 1000 foot magazines, DeBrie friction tripod, finder, all accessories. Latest type equipment like new. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**230 DEGREE SHUTTER** Akeley Camera, X134, special focus on film attachment. 2", 4", 6", 12" lenses. Four 200 foot magazines, Akeley tripod, cases. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**SILENCED BELL & HOWELL** with check pawl shuttle 40-50-75 mm. F. 2.7 lenses mounted, two 1000 foot magazines, tripod, finder and sunshade. Rebuilt like new. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**SILENCED BELL & HOWELL** with new Fearless Movement, 40-50-75 mm. F. 2.7 lenses mounted. Two 1000 foot magazines, tripod, finder and sunshade. Perfect condition. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**MITCHELL CAMERA**; Mitchell & B. & H. Magazines; Mitchell Tripods; Cooke Lenses—mounted and unmounted; Duplex Printer; Magazine and Accessory Cases; and other miscellaneous equipment. Ed Estabrook, 430 No. Flores St., Hollywood. OR. 5003.

**BELL & HOWELL** and Eyemo Cameras, Lenses, Magazines, Tripods, Movielas, Splicers, all kinds of Sound and Laboratory equipment. Eastman and Dupont spliced negative, tested and guaranteed, 2½¢ per foot, on daylight loading rolls, \$2.75. Inquiries invited. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood.

**FOR SALE**—Mitchell Camera. 5—400 ft. magazines, 3 Astro F2.3 lenses, regular tripod, 2 cases, sunshade, all built in features. Bargain. Write for particulars. Irving Browning, 110 West 40th St., N. Y. City.

**FOR SALE**—MITCHELL CAMERA—silenced—4 Astro F2.3 lenses. Friction head tripod, 2—1000 and 2—400 ft. magazines, 3 cases, sunshade and filter holder, Bi-pak adaptation. Follow focus all built in features. A1 condition. Irving Browning, 110 West 40th St., N. Y. City.

**FOR SALE**: Latest DeBrie L, all metal, motor, bayonet mount, five finest lenses, including Telephoto, latest tripod, high hat, cases, magazines, etc. Price \$775.00. BASS CAMERA COMPANY, 179 W. Madison St., Chicago, Ill.

## FOR SALE—SOUND RECORDERS AND EQUIPMENT

**ART REEVES**, latest model 1935, double system sound recording installation, factory guaranteed, Automatic Speed Control Motor, Twin Fidelity Optical Unit, Bomb microphone, the only genuine, modern, workable ArtReeves equipment for sale in Hollywood outside factory. Price, complete in every detail, \$2,400. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

## CAMERA REPAIRING

**BELL & HOWELL** cameras with old type shuttles silenced, \$150. Hollywood Motion Picture Equipment Co., 645 No. Martel Ave., Hollywood.

## FOR SALE—MISCELLANEOUS EQUIPMENT

**VERY POWERFUL FLOODLIGHTS** of new design. Will burn through a 1000 W. Rifle with Cable—\$5.00. With 12 foot collapsible Stand—\$20.00. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

## WANTED TO BUY

**WILL PAY CASH FOR**: Bell & Howell, Mitchell, Akeley or De Brie Cameras, lenses, motors, parts and accessories. Motion Picture Camera Supply, Inc., 723 7th Ave., New York. New York.

**MOTION PICTURE**—Still Picture—Laboratory and Cutting Room Equipment—Lenses—Finders—Tripods. Highest prices paid. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood, Calif.

## POSITION WANTED

**DO YOU WANT A CAMERAMAN** who is an expert on studio production; or an expedition cameraman who knows every corner of the world; or a cameraman who thoroughly understands the making of industrial pictures; or an expert newsreel photographer; or an expert color cameraman? A limited number of cameramen, backed by years of experience, are available. Write stating your requirements and we shall be glad to assist you in choosing the kind of cameraman you want. INTERNATIONAL PHOTOGRAPHER, 1605 North Cahuenga Ave., Hollywood.

**WANTED**: Situation as an actor in a film company by an Indian of a very high and aristocratic family. Knows many languages and other arts. Healthy, good looking, sportsman, and hard working. Wants to join for his future prospects. Willing to join on any reasonable terms. Please apply box No. D. P. 10, International Photographer, 1605 Cahuenga Ave., Hollywood.

**PORTER**—Reliable and trustworthy. Three years experience in camera shop. Ambitious and industrious. Best references. Clarence G. Session, c/o The Camera Shop, Fort Worth, Texas.

## MISCELLANEOUS

## THE INTERNATIONAL PROJECTIONIST

**THE INTERNATIONAL PROJECTIONIST**, a monthly magazine published in the interests of the projectionist. Interesting, instructive. Yearly subscription U. S. and possessions, \$2; foreign countries, \$2.50. James J. Finn Publishing Corp., 1 West 47th St., New York.

**BUYERS READ** these classified advertisements as you are now doing. If you have something for sale or exchange—advertise it in these columns. THE INTERNATIONAL PHOTOGRAPHER, 1605 No. Cahuenga Ave., Hollywood.

**COMPLETE COURSE IN FLYING**—If interested in aviation, see Roy Klaffki, 1605 North Cahuenga Ave., Hollywood.

**WANTED**—To know of the whereabouts of motion picture relics, documents, or equipment of a historical nature for Museum purposes. Write Earl Theisen, care of International Photographer, 1605 Cahuenga Ave., Hollywood.

**THE NEW YORK PUBLIC LIBRARY**, Office of the Director, New York City, would like to procure the following old issues of INTERNATIONAL PHOTOGRAPHERS—all of 1929; January to October of 1930; and November and December for 1931. It will be appreciated if anyone having these numbers will communicate with us or with R. J. Lingel of the New York Public Library.

# We'll Pay Cash!

WE WANT IMMEDIATELY

Mitchell Eyemo De Brie  
Akeley Bell & Howell Contax

Leica, and Similar Used Cameras

— Also —

LENSES, MOTORS, PARTS, AND CAMERA ACCESSORIES

What Have You To Offer?

Write or Wire Today

MOTION PICTURE CAMERA SUPPLY, INC.  
723 7th Avenue New York City



# Engineering Technic In Pre-Editing Motion Pictures \*

By M. J. ABBOTT\*\*

(Reprinted from the Journal of the Society of Motion Picture Engineers for August, 1935; Volume XXV; No. 2.

**Summary**—The use of engineering technic in determining the screen value of each scene in a motion picture before filming is described, and the methods used for control during the process of production are explained.

Pre-editing motion pictures is nothing more than the application to motion pictures of engineering principles used in other lines of endeavor. In setting out to paint a picture, an artist first determines its size. He then outlines his subject. He does not begin to paint his picture without first knowing the relationship each detail bears to the others. The same is true in constructing a building. The architect first determines the size and type of building desired by his client, and then applies his artistry in designing. After these principal facts have been determined, he applies his technical methods of construction. He uses principles which are based upon past experience to determine the foundation necessary and other technical details that will make the completed building both artistic and practicable.

Motion pictures, being made exclusively for their commercial value, have their limitations as to size and the amount of money that can be derived from renting the prints. As the possible return upon the investment is limited, the cost of the motion picture must of necessity be limited. Although the cost of an article usually has some bearing upon the possible return upon the investment, excessive costs will not lead to excessive returns unless the quality of the article has been enhanced commensurately by the expenditure.

The financial structure of the motion picture industry, established by its competitive industrial standing, is such that it not only determines the possible return upon the investment, but also limits the length of the pictures. To fulfill conditions existing within the industry, exhibitors are compelled to have at least two performances a night in order to operate their theaters profitably. Thus, the playing time for each show is naturally limited. As the exhibitor is compelled to present a balanced program to his patrons, experiences having established the newsreels, comedies, educational features, etc., the playing time of a feature picture is limited to approximately one and one-half hours. The studios must construct their pictures to fulfill these requirements.

A general impression exists that making a motion picture is entirely a matter of creative artistry and, as such, must not be hampered by anything of a technical nature. It is not the purpose of this paper to attempt to prove or disprove this theory. We shall grant that it is true in part and that the creator's mind should not be annoyed with technicalities while creating. However, the results of the creator's efforts become purely technical as soon as completed, and their value, technically or commercially, is determinable by comparison with past experience.

The principle of pre-editing is not to curb the creative mind by compelling it to consider the technical points of a picture while working upon a story. It is a means of determining the motion picture value of the creator's efforts. Many question the possibility of computing the value of a story. This impression is not based upon facts, as story values have been measured since the inception of motion pictures. The only difference between pre-editing and the method that has been used in the past is that we do not wait until the story is upon the film and reaches the cutting room to find the errors, and then hope to edit the story by having the cutter remove the surplus or poor scenes and reduce the picture to commercial length. It can, therefore, be seen that the principles used in pre-editing are not new, but are merely the application of these known principles in determining the value of the story before rather than after the picture has been made.

The first principle to be considered in pre-editing is the type of picture to be made. These types are as follows:

- |                  |                    |
|------------------|--------------------|
| (1) Drama        | (5) Farce          |
| (2) Melodrama    | (6) Musical Revues |
| (3) Comedy Drama | (7) Musicals       |
| (4) Comedy       | (8) Westerns       |

The determination of the type sets the tempo in which the picture will be made. The story must be timed accordingly.

The first step in determining picture value is to read and study the entire script; after doing which each scene of the script is read and studied individually, as though it were a complete picture. The action as outlined by the writer is studied and allowance made for the footage necessary to place each of the individual scenes upon the screen. The basis used in determin-

ing the necessary footage is that of the presently used cutting principles. The dialog of the scene is timed by reading the lines in the tempo of the class of picture to be made, allowance being made for the simultaneous occurrences of dialog and action.

The next step is to determine the value of each scene as a motion picture, namely, what portion of the scene, as outlined, will be given to the audience through the eye, and what portion through the ear. This is arrived at by timing the dialog in the scene which is not covered by action. The scenes are then computed by episode and sequence, and summarized for the entire story. The results are furnished to the writer, producer, and director for their guidance in re-writing the story, to eliminate or correct weak spots due to excessive dialog, and also to visualize the relative value each scene bears to the entire picture, and to regulate the length of the picture to meet the commercial requirements of the exhibitor.

During the shooting of a picture, a production control record is kept, and the actual time of shooting each scene is compared with the estimated value of the scene as conceived by the writer. This control is arrived at by comparing the script notes made by the company script clerk, who times the footage of each scene during the process of shooting. As the various episodes and sequences of the story are completed and placed in "rough cut" by the cutters, they report to the production control the amount of footage of each take made by the director that has been used and placed in "rough cut." Upon receipt of this information, and upon comparing it with the pre-estimate, it can be determined whether or not the picture is being shot in the tempo of the class of picture desired.

Daily Production Reports are furnished to the producers and directors showing the status of their picture, as to the shooting schedule, the quantity of film used, and the tempo in which the director is actually shooting the picture. As the story value of the picture in the pre-estimate is based upon the correct tempo of the type of picture to be made, by comparing the actual shooting with the estimated time the producer is informed as to the tempo of each scene and sequence, and as to whether or not it is shot too slow or too fast, so that when the picture is completed it will not be slow in spots and fast in others.

When the picture is finally completed and ready for release, the actual takes used in the picture are compared with those shot by the director and the cost of those not used (the out-takes) is determined by the time spent in making them. Some of the benefits to be derived from pre-editing are as follows:

- (1) Eliminates waste due to over-shooting.
- (2) Shortens shooting schedules.
- (3) Saves time of company and executives in projection room checking film which never reaches the finished picture.
- (4) Prevents distorting the story by endeavors to cure defects after shooting.
- (5) Allows the story as written to reach the finished picture without mutilation.
- (6) Allows the judicious and profitable spending of money.
- (7) Hence the improvement in quality of product.
- (8) Finally, cleans up the cutting room floor.

\* Presented at the Spring, 1935, Meeting at Hollywood, Calif.

\*\* RKO Studios, Hollywood, Calif.

## De BRIE at SACRIFICE!!

### New Type SUPER PARVO DEBRIE Ultra Silent Camera

Has built-in motor, automatic dissolve, pilot pins and anti-buckling device. Four 1000 ft. magazines—40 mm., 50 mm., and 75 mm. lenses—Debie friction tripod and new type Debie finder. Leather covered carrying trunk and tripod cover. It's the latest type equipment—like new!

MOTION PICTURE CAMERA SUPPLY, Inc.  
723 Seventh Avenue New York City  
Cable: "Cinecamera"

# CINEMACARONI

By ROBERT TOBEY

(With sauce for those who like it.)



## HOLLYWOOD HONEYMOON

(A novel novel of a thousand and one nights in a daze)

by  
R. THRITIS

Cast of characters and synopsis of preceding installments, all for the price of one:

Perriwether Murgle, press-agent plenipotentiary for the great cinema star,

Lili Liverblossom, has been kidnapped and carried off across the desert by

Willy Nilly, a large Bald Eagle. Making friends (as who doesn't?) the two sit down together to partake of a bottle of Scotch hair tonic. The Eagle, amused to such libations, gets slightly crooked, and can't fly. Sympathetic Perri offers to take Willy home to his wife. We pick up the thread of the story just as Perri, with the Eagle hanging onto his coat-tails, flaps his arms and flies off across the desert.

### CHAPTER XI—HALF A LEAGUE ONWARD

There was Perri, flapping off across the desert with the Eagle hanging on for all he was worth. (Only ten dollars, if you must know, as he wouldn't be a double eagle for three more drinks yet.) The Eagle wasn't hanging on any too well, for all he was hanging on for all he was worth, and presently Perri had to reach down and gather him up with one arm, flapping the other madly. But this one-arm paper-hanging only made him go around in circles, so Perri hooked the Eagle's beak in his pocket and was on his way again. The Eagle was as limp as a piece of damp taffy, but presently the cool desert breezes began to revive him. He was no end amazed to look up and see that Perri was carrying him off across the desert, just to reverse procedures, and making pretty good progress, too.

"Whee," said the Eagle, cocking one eye up at Perri. "Going like the wind, by gosh! You certainly learn quickly, young feller," he added, gazing admiringly at Perri's rhythmically flapping arms. "It took me months to learn to fly like that."

"It's nothing," said Perri modestly. "You're such a good teacher, that's all."

"But I didn't teach you," said the Eagle a little tartly.

"Just my way of expressing it," said Perri, forcing a smile. Under his breath he said: "He's not so tight!"

"I think you're a little off the course," said Willy. "You'd better box your compass."

"If that's an opening for a pun," came back Perri sourly. "I'm busy."

"Then let me talk to your secretary," said the Eagle brightly.

"If you're so chirper," snapped Perri, "you'd better do the flying around here."

At that the Eagle collapsed.

(The author hopes you are the same. If Perri isn't too tired next month, we'll continue this interesting flight across the desert. The refueling plane takes off at 4 A. M. every day. While you're up, would you mind watching for it?)

All the studios are going through a wave of dusting off the storage vaults and reissuing a bunch of old pix that were hits five years ago. All they risk is printing cost and sometimes they take in amazing profits on these revivals. Especially are all the old Capra specials being disinterred on the strength of Frank's recent Academy recognition and the general popularity of his latest productions.

A film shows for a period of about two years

at the most in this country, playing "first run" or major theatres in the big cities at first and gradually dropping off to the "sticks" or small-town low price houses. However, several of these pictures that are now being re-released in America are still running in foreign countries. James Cruze continues to get royalty checks, small but quite real, from the foreign showings of "THE COVERED WAGON."

### POLITE SKEPTICISM DEPT.

A writer in the irreproachable "Liberty Magazine," dispensing pearls on what appeared to be the subject of the *Decline of Sex*, says that only yesterday, "Flaming Youth went to the movies to see Jean Harlowe heave her bosom."

### Yesterday?

### KNEECAP REVIEWS

(No space left on my thumb-nails)

"ESCAPE ME NEVER" is the frame around a masterful character portrait by Elisabeth Bergner, whose delightfully authentic portrayal of the street-urchin who marries one of the worst of the Sanger family, is a thing to charm the soul. The entire film, in fact, is one of the finest examples of character-study on the screen that it has been my pleasure to see.

"SHE MARRIED HER BOSS." An interesting, well-portrayed, if somewhat implausible story of an efficient secretary who married her boss and found she was still just the efficiency expert. Claudette Colbert does as well as could be expected in the role of the secretary, and let me tell you it is getting so Miss Colbert is expected to do uncommonly well. Melvyn Douglas's work is excellent, although the script was pretty tough on him. The Amazement Department is filled by little Edith Fellows, who turns out a spoiled-brat role with a finesse that would make dozens of the finest adults green with envy.

Miss Helen Hayes, who prefers the stage to the silver screen, has turned down an offer to co-star with Ann Harding in "The Old Maid," a Paramount production, says a news report. Her salary for the picture was to have been \$85,000.00.

That's the biggest salary Miss Hayes won't get in a long time.

### LITTLE THOUGHT FOR TODAY

Pictures  
Are Something  
Everybody should ought  
To be proud about.  
Because pictures  
Are something.  
Some of them, anyway.

Proudly,

R. THRITIS.

Life is somewhat unfair at times. You'll forgive the platitude, I hope. Harmon O. Nelson, Jr., and his wife, the lovely, slim Bette Davis,

are one of Hollywood's most devoted couples yet Fate decrees that they see each other only on rare occasions. Bette is kept plenty busy by the Related Warner Boys, who are adept at keeping people busy; while Nelson heads an orchestra in the swanky Villa Mateo Club in San Francisco, 450 miles away. As Bette says, a little sadly, "It would be perfect if we weren't in love, and wanted to go out with other people, but we really are crazy about each other."

After weeks of absence from each other, it finally took a raid to bring the two kids together for a few days. The San Francisco police invaded the Club where Nelson's band plays, so Nelson flew to Los Angeles to spend a few days with Bette while the Club adjusted matters.

Incidentally, Nelson can play every instrument in his band, sings, and has just had his own song, "Riding on a Bus Top," published by Irving Berlin.

THE MACARONI BOWL, by the Shovel Boys (They dish the dirt) \* \* \* Looks as if cute little Marian Marsh is at last to get a real break. Josef von Sternberg, who is to young starlets as the skilled potter is to clay, is taking particular pains with Marian's performance in the coveted role of Sonya in the picturization of Dostoevski's "Crime and Punishment," now in production on Columbia's sound stages. Peter Lorre and Tala Birell have the other leading roles in this von Sternberg production.

Remember we said bigger things were in store for Benny Rubin? He is now directing his first "short," and as soon as he gets a little more practical experience will direct feature pictures.

\* \* \* Jack Laue wanted to raise some pigeons. He bought a few pigeons. The pigeons got married. Now he tries to give away pigeons to all his friends. \* \* \* Mary Brian has her own private tap house, but doesn't serve any beer. She is an excellent dancer, and has had a special small dance hall built near the edge of Toluca Lake, which borders the back yard of her home. Here Mary can practise to her heart's content. A huge mirror is installed so that she can see how she's doing.

Phillip eed found out that crutches are no good for walking on sandy beaches. He sprained an ankle playing volley ball just before he was invited to a party at Louella Parson's beach house, so he arrived sporting a pair of "what-the-well-dressed-cripple-will-wear." Every time he tried to take a step on the sand, the crutches sank two feet. Finally he held the crutches in the air and hopped around on one foot. Next time try snowshoes, Phil. \* \* \* Jackie Cooper and George Breakton shot it out the other day—with rifles for two—on a rifle range. Both are "22" enthusiasts.

Jean Harlow and her mother and Bill Powell tried to vacation at Del Monte, but the photographers and autograph hounds were so thick they had to go into Yosemite. \* \* \* Victor Jory has recovered from his illness and is back at work. He goes into "Song of the Damned," Al Rogell directing.

Sign in a Hollywood shop window:

WIND BAGS, \$1.95


How supervisors' salaries have come down!

Walk, don't run, to the nearest exit.

On OCTOBER 1, 1935  
The Subscription Price of  
INTERNATIONAL PHOTOGRAPHER  
Will Be Increased to \$3.00  
In Canada and Foreign Countries

Please mention The International Photographer when corresponding with advertisers.





*Congratulations to  
Ray Rennahan, Chief Cinematographer  
for Technicolor, on his splendid work  
in photographing "Becky Sharp"*

NATIONAL CARBON COMPANY, INC., CLEVELAND, OHIO



# Mitchell Sets Standard

Every industry has a product  
that is considered standard, by  
which all other products of  
that industry are measured.



MITCHELL is the standard in  
cameras in the motion picture  
industry.....all others are com-  
pared to MITCHELL.



## MITCHELL CAMERA CORPORATION

665 N. ROBERTSON BOULEVARD  
WEST HOLLYWOOD, CALIFORNIA

*Cable Address "MITCAMCO"*

MOTION PICTURE CAMERA SUPPLY, INC.  
New York City, New York  
CLAUDE C. CARTER  
Sydney, Australia  
HARRANT NASSIBIAN  
Cairo, Egypt

*PHONE OXford 1051*

D. NAGASE & CO. LTD.  
Osaka, Japan  
BOMBAY RADIO CO., LTD.  
Bombay, India  
ARMINIO CONTI  
Rome, Italy



# INTERNATIONAL PHOTOGRAPHER

—HOLLYWOOD—

FIFTEENTH YEAR

OCTOBER, 1935

VOL. 7  
No. 9



STILL BY BERT LONGWORTH

One of those "dodge-the-mirror" shots in a recent Warner release directed by Mervyn LeRoy and with dances staged by Bobby Connolly. Left to right in mirror: Bobby Connolly, Al Green, Sol Polito and Frank Evans. Irene Dunne before the camera. Still by Buddy Longworth, demon "special shot" man on the set. Working Staff: Chief Electrician, George Satterfield. Grip, Harold Noyes.

**25** CENTS  
A COPY

MOTION PICTURE ARTS AND CRAFTS





OFF FOR A LONG RUN

WITH DU PONT NEGATIVE



**DU PONT**

REG. U.S. PAT. OFF.

**DU PONT FILM MANUFACTURING CORPORATION**

35 WEST 45<sup>TH</sup> STREET  
NEW YORK CITY

SMITH & ALLER LTD.

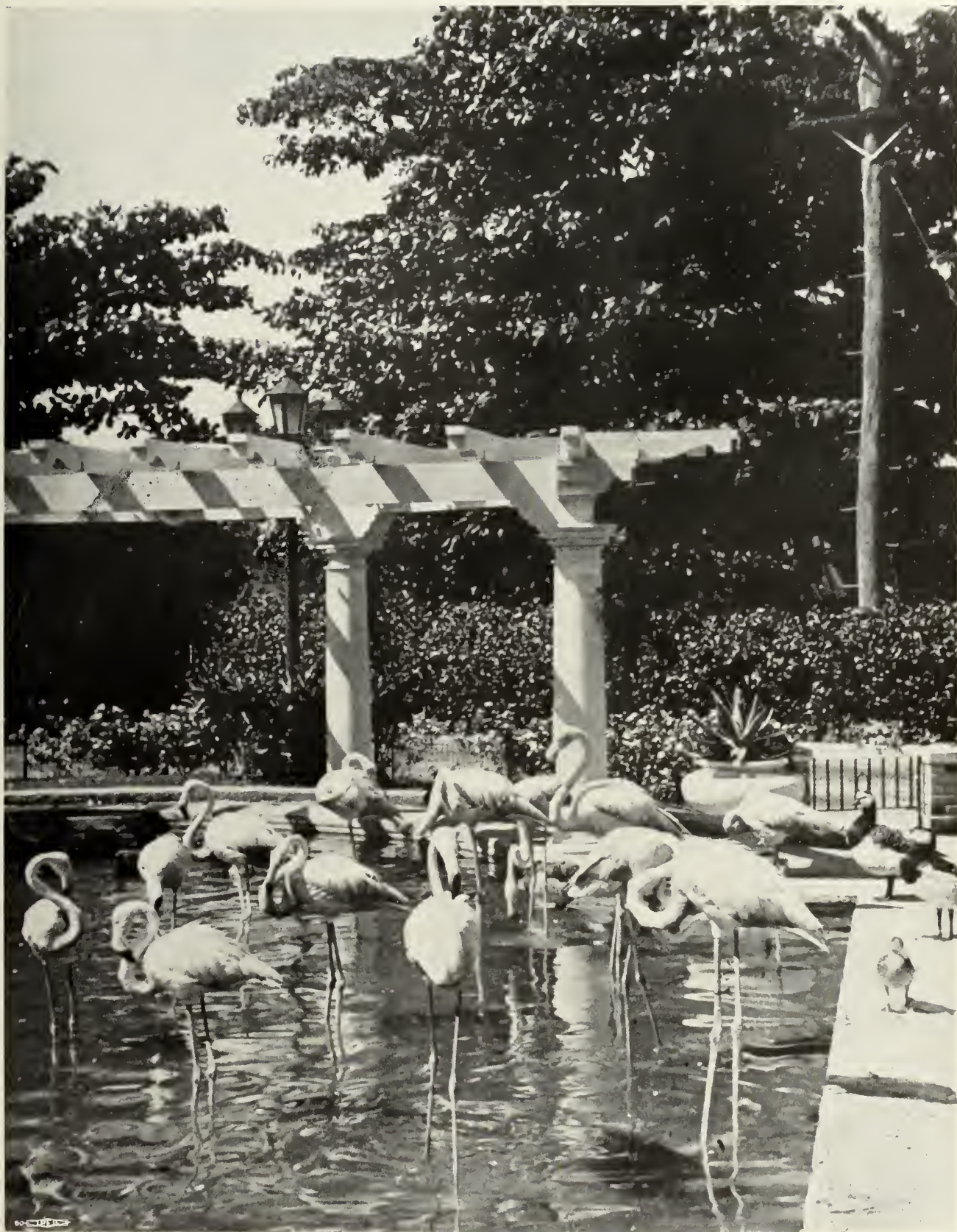
6656 .. SANTA MONICA BLVD.

PLANT . . . PARLIN, N. J.

HOLLYWOOD, CAL.

THE **DU PONT** TRADEMARK HAS NEVER BEEN PLACED ON AN INFERIOR PRODUCT





Esselle Parichy, ace photographer, globe trotter, writer, news cinematographer, artist and camera expert in general, captured this flock of Flamingos in his "good box" while on a camera hunt in Cuba.



# INTERNATIONAL PHOTOGRAPHER

MOTION PICTURE ARTS AND CRAFTS

Vol. 7

HOLLYWOOD, OCTOBER, 1935

No. 9

SILAS EDGAR SNYDER, *Editor-in-Chief*

EARL THEISEN and CHARLES FELSTEAD, *Associate Editors*

LEWIS W. PHYSIOC, FRED WESTERBERG, *Technical Editors*

HELEN BOYCE, *Business Manager*

A Monthly Publication Dedicated to the Advancement of Cinematography in All Its Branches; Professional and Amateur; Photography; Laboratory and Processing. Film Editing, Sound Recording, Projection, Pictorialists.

## CONTENTS

Front Cover Still by Bert Longworth

FRONTISPIECE by Esselle Parichy	- - - - -	1
MOTION PICTURE CAMERAMEN'S ORGANIZATIONS	- - - - -	3
<i>By the Editor</i>		
THE STORY OF HOLLYWOOD	- - - - -	4, 5 & 6
<i>By Laurance L. Hill</i>		
PICTURES ON THE SCREEN	- - - - -	8 & 9
<i>By Karl A. Barleben, Jr., F.R.P.S.</i>		
THE MINIATURE CAMERA IN RESEARCH AND PERMANENT RECORDS	- - - - -	10
<i>By Hansena Fredrickson</i>		
PHOTOGRAPH & SOUND PATENTS	- - - - -	11
<i>By Robert Fulwider</i>		
COMPOSITION	- - - - -	12 & 13
<i>By Robert M. Parker</i>		
MINIATURE CAMERA PHOTOGRAPHY	- - - - -	14
<i>By Augustus Wolfman</i>		
MOTION PICTURE SOUND RECORDING	- - - - -	17
<i>By Charles Felstead</i>		
SOME NOTES ON THE DEPTH OF FIELD OF MOTION PICTURE CAMERA LENSES	- - - - -	18
<i>By Fred Westerberg</i>		
PETERSON'S TELESCOPIC CAMERASCOPE	- - - - -	19
<i>By Ed. M. Witt</i>		
CHOOSING YOUR FILMS	- - - - -	20
<i>By Earl Theisen</i>		
WHY CAMERAMEN REVEL IN THEIR WORK	- - - - -	22
<i>By Herbert Aller</i>		
A R C LIGHTS FOR COLOR	- - - - -	23
<i>By Peter Mole</i>		
CLASSIFIED	- - - - -	24
CINEMACARONI	- - - - -	Inside Back
<i>By Robert Tobey</i>		

Entered as second class matter Sept. 30, 1930, at the Post Office at Los Angeles, California, under the act of March 3, 1879.

Copyright 1935 by Local 659, I. A. T. S. E. and M. P. M. O. of the United States and Canada

Office of publication, 1605 North Cahuenga Avenue, Hollywood, California  
Gladstone 3235

James J. Finn, 1 West 47th St., New York, Eastern Representative  
McGill's, 179 and 218 Elizabeth St., Melbourne, Australian and New Zealand agents.  
Subscription Rates—United States and Canada, \$2 a year. Single copies, 25 cents.

This Magazine represents the entire personnel of photographers now engaged in professional production of motion pictures in the United States and Canada. Thus THE INTERNATIONAL PHOTOGRAPHER becomes the voice of the Entire Craft, covering a field that reaches from coast to coast across North America.

Printed in the U. S. A. at Hollywood, California



A  
Year's Subscription  
to the  
INTERNATIONAL  
PHOTOGRAPHER  
is  
\$2.50  
After October

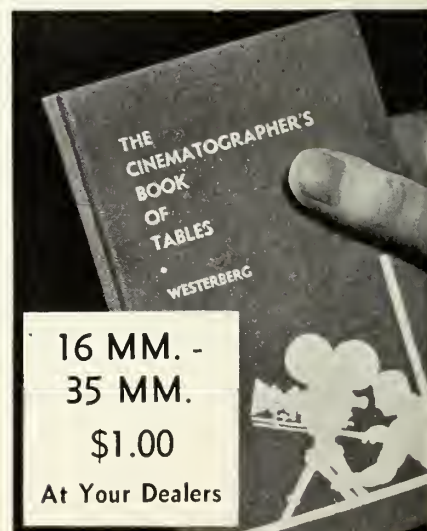
Beginning with October 10  
the subscription price for a  
year will be

\$3.00

in Canada and Foreign coun-  
tries.

The Miniature Photographic  
authority for the West Coast  
... Motion Picture Arts and  
Crafts to be featured in 1936  
... A new department of 16  
mm. coming up; also the story  
of the making of a Motion Pic-  
ture.

Readers will want the maga-  
zine and advertisers will want  
to tell their stories in it.





# Motion Picture Cameramen's Organizations in America

(Written for the International Cinematographic Institute)

By THE EDITOR



HE first organization of cameramen in the United States was the Static Club of America, at Los Angeles, California. When it came on the stage Hollywood was rapidly growing into the cinema center it was destined to be. Many cameramen had left New York to take up jobs on the Pacific Coast and there was beginning to be talk of the formation of the Hollywood group into an active organization.

The original proponents were made up of Leonard Smith, James Crosby, William Alder, Dal Clawson, Harry McGuire, William Foster and Edward Ullman.

Just about this time the cameramen were being greatly annoyed by that awful thing called static, and it was in the nature of a jest that the new organization was named "The Static Club of America," and each of the organizers named herewith contributed one penny each to the constitution of a treasury.

The Static Club of America received its charter as a California corporation on April 25, 1913, and continued under its corporate title until December 11, 1917, when by decree of the Superior Court of Los Angeles this title was changed to "Cinema Camera Club of California," and still is in good standing on the records of the Department of the State of California.

This organization was primarily and essentially a social club for the advancement of ideas. Its interests were devoted to the improvement and development of technical features of cinematography. While organized primarily for the improvement of personal relations, it assumed the status of a large and serious-minded body of able and capable men whose work was devoted to the advancement of camera art as applied to motion picture production.

The second organization of cameramen in the United States was perfected at New York, also, in April, 1913, at the Heine Bund Hall, 267 West 34th Street. Thirteen men were present and the names of four others were submitted for membership.

The title chosen for this organization was "The Cinema Camera Club," and the initiative to bring about the meeting was taken by Mr. Lewis W. Physioc of New York, at that time an associate of Thomas A. Edison and probably the pioneer cinematographer of America. At that time Mr. Edison was the most prominent researcher in the field of cinema.

The idea of consolidating all professional motion picture photographers arose because of peculiar conditions obtaining in the industry. The cinema was in its primary stages and, therefore, practically in a state of chaos, for there was a constant inflow and outflow of prompters, exhibitors, cinematographers, financiers, technical operatives, etc., and it was impossible to know where to turn to secure the personnel and the material that was needed.

On April 18, 1913, at the third meeting of the Cinema Camera Club of New York City, there was adopted the following admirable preamble to its constitution:

"We, the members of the Cinema Camera Club, have resolved to organize an association for the development of an artistic and skillful profession, namely, the operating of cinematographic cameras; it being our purpose to maintain for the members of said profession the dignified standing justly merited, among the rest of that industry of which it forms a most important branch."

By February 15, 1917, Cinema Camera Club of New York boasted one hundred and eleven members, and many of them are still in active service in Hollywood and other cinema centers of the world.

At the meeting of April 18, 1913, the first election of officers resulted as follows: President, Mr. Oliver; first vice president, Mr. Armitage; second vice president, Mr. Maxwell Held; recording secretary, Mr. Herbert Siddons; corresponding secretary, Mr. Rubenstein; financial secretary, Mr. William Zollinger; treasurer, Mr. Lewis W. Physioc; sergeant-at-arms, Mr. Jules Cronjager; guide, Mr. Lawrence Williams.

By 1918 the Static Club of America ceased to function as an autonomous body and was consolidated with the American Society of Cinematographers of Hollywood, an aggressive organization of cameramen which, under the leadership of Phil Rosen, but recently of New York, was coming rapidly into the limelight. The original incorporators and directors were: Percy Hilburn, J. D. Jennings, Charles Rosher, Fred LeRoy Granville, Joe August, Roy Klaffki, Billy Foster, Homer A. Scott, Robert Newhard, L. Guy Wilky,

Philip E. Rosen, L. D. Clawson, Eugene Gaudio, W. L. Griffin, Victor Milner.

This organization has persisted through the years and with the slogan, "Loyalty, Progress and Art," has developed many ace cinematographers. The American Cinematographer magazine is owned and published by this group of cinematographers in the interests of both the motion picture studios and the amateur.

The fourth and last organization of cinematographers to be made in America was that of the International Photographers, professional cinematographers whose purpose for organization was organized labor as being the one thing needful to procure just and fair treatment from the motion picture producers.

The International Photographers received their charter as a trades union local on August 1, 1928, and within a short time had a membership of 800 cinematographers, assistants, still men, newsreelers and special process operators enlisted under the banner of Local 659, which has become affiliated with Los Angeles Amusement Federation, California State Theatrical Federation, California State Federation of Labor, American Federation of Labor, International Alliance of Theatrical Stage Employees; the 34,000 members of Moving Picture Machine Operators of America; Local 666 at Chicago; Local 644 of New York City, and the local at Toronto, Ontario, Canada.

Local 659 owns and publishes the International Photographer magazine, which began publication in February, 1929, and which has become internationally known as an authority on motion picture arts and crafts.

Both the American Cinematographer and The International Photographer were made into magazines from house organs of the respective cinematographic organizations by Silas Edgar Snyder, at present editor of the International Photographer. The American Cinematographer is edited by Charles J. Ver Halen. Other editors of these publications were Foster Goss and Hal Hall, on The American Cinematographer, and George Blaisdell on The International Photographer.

In 1915 the Static Club roster of members included: W. F. Alder, Sterling Motion Picture Co.; R. D. Armstrong, Keystone Film Co.; J. H. August, New York Motion Picture Co.; Lee Bartholomew, Universal Film Manufacturing Co.; W. J. Beckway, with Balboa Motion Picture Co.; H. L. Broening, the Famous Players Co.; R. Carson, Selig Polyscope Co.; A. E. Cawood, Universal Film Manufacturing Co.; Dal Clawson, Bosworth, Inc.; J. A. Crosby, New York Motion Picture Co.; Allen M. Davey, L-KO Motion Picture Co.; H. Davis, Lubin; F. M. Dean, American Film Manufacturing Co.; R. V. Doerer, New York Motion Picture Co.; William C. Foster, Universal Film Manufacturing Co.; Harry A. Gant, Santa Barbara Motion Picture Co.; H. Gerstad, Selig Polyscope Co.; Otis M. Gove, New York Motion Picture Co.; K. D. Gray, L-KO Motion Picture Co.; Fred L. Granville, Navajo Film Co.; Walter L. Griffin, Universal Film Manufacturing Co.; H. B. Harris, Sterling Motion Picture Co.; George Hill, Bosworth, Inc.; I. G. Hill, Universal Film Manufacturing Co.; Al Heimerl, American Film Manufacturing Co.; J. D. Jennings, New York Motion Picture Co.; E. Leslie, Keystone Film Co.; J. W. Leezer, Reliance and Majestic Studios; Bert Longnecker, United States Motion Picture Co., Oroville; G. W. MacKenzie, Selig Polyscope Co.; John MacKenzie, Sawyer, Inc.; K. G. McLean, Keystone Film Co.; Ralph Merrello, Universal Film Manufacturing Co.; Thomas Middleton, American Film Manufacturing Co.; Santa Barbara; M. Moore, Universal Film Manufacturing Co.; A. Nagy, Universal Film Manufacturing Co.; H. C. Neuman, Selig Polyscope Co.; R. S. Newhard, New York Motion Picture Co.; John M. Nickolaus, Universal Film Manufacturing Co., New York City; S. S. Norton, Universal Film Manufacturing Co.; L. G. Osland, Selig Polyscope Co.; H. M. Oswald, Kalem Co.; Roy Overbaugh, Universal Film Manufacturing Co.; S. Rounds, Universal Film Manufacturing Co.; G. Rizard, Masterpiece Film Co.; G. Scott, New York Motion Picture Co.; H. A. Scott, The Favorite Players Co.; Al Seigler, Universal Film Manufacturing Co.; Leonard M. Smith, Balboa Amusement Producing Co.; Walter Stradling, Jesse L. Lasky Feature Play Co.; E. G. Ullman, Universal Film Manufacturing Co.; E. J. Vallejo, Paramount (Wilford Lucas Co.); Walter Wright, Keystone Film Co.; Frank Williams, Sterling Motion Picture Co.; Gilbert Warrenton, Universal Film Manufacturing Co.; Alvin Wyckoff, Lasky Feature Film Co.; Al Ansbacher, J. H. Buffum, B. P. Fraser, Ed Gehler, Ira H. Morgan, A. J. Morrow, Harry Maquire, W. Piltz, Walter Pritchard, R. V. Phelan, H. Reimers, Carl Widen.





**T**HE Hollywood of Yesterday is no better exemplified than in these beautiful pictures of Paul DeLongpre, his home and his garden of flowers.

"The great floral painter, after over a decade here, passed to his reward just as Hollywood was emerging from the pepper-shaded suburb to the bustling center of one of the world's greatest and most humanly interesting industries.

"Paul DeLongpre's name is usually the first one mentioned when old residents live over the old days together again. His memory is still a community asset.

"The Hollywood of Today, her people, her homes, her trees and her hills still lure those of the DeLongpre mold. They come on in increasing numbers every year to stay, until now it may be said truly that Hollywood is the art capital of the Western World!

#### Hollywood Rich in History

"When the pioneers of the motion picture industry came to Hollywood in 1911 and rented the old Blondeau tavern and barn at Sunset and Gower for a studio, it was the lure of the hills and the sea and the sunshine rather than the history of the Cahuenga Valley that brought them into this vale.

"It is doubtful even today that the history of the locality of the great studios is drawn upon as a part of the "raw material" going into the making of a finished film. Yet this region is as rich in story as it is in clear skies or entrancing scenery. Its chronology would make a hundred scenarios pregnant with romance, tragedy, color and action.

"Over the very Pass where the first large local producers of pictures went to found their famed white city just over the hills, had gone afoot on his way from mission to mission the most romantic figure of all Western history. At the foot of the Pass, Father Junipero Serra had paused to rest one day under the shade of the friendly sycamores and oaks and there said the Mass of the Holy Wood of the Cross. After Father Serra's death, his former co-laborers built San Fernando Mission and at the top of the Pass they built also Cahuenga Chapel, tributary to the Mission. Here worshipped Chief Cahuenga and his tribe when one of the fathers journeyed over from San Fernando and held service.



Cahuenga Pass before the Autos came.

## "In the VALLEY of THE STORY OF HOLLYWOOD

(Back yonder in 1922, the late Laurance L. Hill, Director of the Publicity Department of the Security Trust & Savings Bank, conceived the brilliant idea of writing a series of historical booklets for the purpose of exploiting the great financial institution he represented.

Nothing just like this had ever been done and its success was instant and enthusiastic—the first work of Mr. Hill being a charming and instructive book of 52 pages, beautifully illustrated and in every way in step with the community.

The book was issued under the title, "In the Valley of the Cahuengas," with a sub-title, "The Story of Hollywood." It was published by the Hollywood Branch of the Security Trust & Savings Bank, and, through the years, from 1922 to the present time many thousands of copies of it were circulated, not only in Hollywood and the metropolitan district of Los Angeles, but nationally.

For the first time the romantic background of Hollywood was spread before the world, and so well did Larry Hill do his work that over night he was acclaimed a true historian and "The Story of Hollywood" proved to be the first of an imposing line of such books written by Mr. Hill and sponsored by the Security Trust & Savings Bank, among which were: "Five Friendly Valleys," the story of Highland Park; "On Old Rancho San Pasqual," the story of South Pasadena; "Daughter of the Snows," the story of Lankershim; "Ranchos of the Sunset," the story of Long Beach; "Crown of the Valley," the story of Pasadena; "Ranchos De Los Santos," the story of Burbank; "First of the Ranchos," the story of Glendale.

"In the Pass where roared the great trucks carrying the lumber to build Universal City, had the faithful half-breed Indian, Salvador, hidden the gold of El Molino Viejo to save it from being captured by the bandits lurking in the side canyons. It was well that he did this, for his own mule train of wool and hides was beset by



"Casa Don Tomas Urquides"  
(Since famous as the "Outlook")

the outlaws and Salvador himself was mortally wounded and would have been carried off by the bandits had not Chief Cahuenga and his braves, hearing the battle, come to the rescue and scattered the marauders. And for all time, when searchers for the hidden gold have dug for it in the Pass, tradition has it, the ghost of Salvador has come and frightened them away.

"On August 3, 1769, the Gaspar de Portola expedition found its way through Cahuenga Pass. Before going north, however, it spent six days in the Cahuenga and San Gabriel Valleys. Father Crespi writes that they feasted on antelope, found the Indians friendly and generous, but complains that a total of twenty earthquakes were felt during the week.

#### The Treaty of Cahuenga

"After Mexico freed herself from the yoke of Spain, four times did her governors of California face revolt and four times did the contending armies march through the Pass in comic opera warfare. Governor Jose Maria Echeandria fought down the first rebellion. He went to Santa Barbara, where a bloodless battle established his right to place the capital at San Diego because he preferred its climate, rather than at Monterey. When Juan Bautista Alvarado and Carlos Antonio Carrillo marched their 284 men and



# the CAHUENGAS"

"Since You Were Here Before," the story of the Bankers' National Convention: "El Pueblo," Los Angeles before the Railroads; "Six Collegiate Decades," the story of Westwood; "La Reina," the story of Los Angeles; "Terra Adorado," the story of Santa Barbara.

We hear much prating in these days about "Hollywood." Some think it is a national forest preserve; some think it a state of mind and some think it merely a pay check, but unless one has read Larry Hill's "Story of Hollywood" he will never know and understand the romantic background of this magical place.

At this writing all of Mr. Hill's delightful and informative books are unfortunately out of print (only temporarily, we hope), but as our present business is only with "The Story of Hollywood" we shall try to await with patience the reprinting of the rest.

Laurance L. Hill needs no introduction to Hollywood, to the Metropolitan District of Los Angeles, to California, or to "Who's Who in America," for that matter, but he spent twenty-two years of his active and useful life in what is now called Hollywood and was always a leading force in every progressive movement of the community.

He was the eldest son of Mr. and Mrs. John Corydon Hill, for twenty-five years prominent residents of Beachwood Drive, Hollywood and we have his word that the picture of Pre-Cine Hollywood here drawn is the true Hollywood of this amazing community. Mr. Hill's text is marked by quotation signs, the omissions are marked by periods. Because of the shortness of space only a small part of the author's fifty-two pages can be reprinted.

Reprinted by special permission of the Advertising Department of the First National Security Trust & Savings Bank of Los Angeles. Editor's note.)

three cannon through Cahuenga on February 18, 1845, and engaged Governor Emanuel Micheltorena in battle next day at Encino Rancho, as many as two mules were said to have given their lives to establish a new government.

"Under the Mexicans, the missions were secularized. Cahuenga



J. B. Rapp's Pineapple Plantation.

Chapel fell into disuse with the granting of Cahuenga Ranchero by the government to Senor Ramirez in 1836. At that time, too, down came the idol of the pagan god, Chinigchin, before the rancheria of the Mocha Venga Indians, near where now stand the Vitagraph Studios, when that land was granted to Jose Antonio Feliz.

"Universal City was built within hailing distance of old Cahuenga Chapel. It was under the Chapel's tiled roof that General Andreas Pico surrendered to General John C. Fremont and signed there on January 13, 1847, the Treaty of Cahuenga, surrendering California to the Americans. It was from the Hollywood hills that a Mexican outpost first sighted the oncoming Americans. His foaming broncho took him through the Pass to Mission San Gabriel where Pico and his men were camped. From the mission was dragged the 'cannon of the white mule,' so named from the patient beast that pulled it across the Cahuenga Valley up through the Pass to face the Americans. Pico, seeing his inferiority in arms, had his tiny army set fire to the bushy hillsides in an attempt to deceive the Gringos into believing that his numbers were overwhelming. But to no avail. Soon Fremont's forces were streaming down Cahuenga Pass on the way to El Pueblo de Nuestra Senora la Reina de Los Angeles.

The late Laurance Landreth Hill, Historian



Photo by Mojonier



"A year or so later Fremont, then the American governor of California, went through the Pass on his famous mustang ride with Jesus Pico and Jacob Dodson to Monterey, 500 miles away.



Jose Mascarel's \$10.00 Acreage on Gower.

Fremont was back through the Pass just a little over a week later, for during the ride the dashing young American and his companions averaged 125 miles daily for the round trip of 1,000 miles, being absent from Los Angeles just 8½ days. The fastest time ever made on horseback through the Hollywood hills, however, was made by Juan Flaco, the messenger who carried the news to the American forces of the revolt in Los Angeles against Captain Gillespie. Flaco made 462 miles in 52 hours.

"With the discovery of gold in '49, Cahuenga felt the eager feet of searchers for gold as they wended their way from El Pueblo de Los Angeles northward. An old account says that not more than 30 Americans were left in Los Angeles after the rush to the mines.

"In the fifties the Pass saw the strangest procession that ever made its tortuous descent through its dusty throat. It was none other than a caravan of camels from Smyrna, driven by 'Greek George,' sent out by the government in an attempt to solve the transportation problem in the great unirrigated Southern California desert. The experiment soon proved a failure. 'Greek George' disposed of the camels to a circus and bought 160 acres in the



Apricot and fig orchard at Hollywood and Cahuenga.





Sunset Boulevard at Gower as late as 1906.

hills, including the present Hollywood Bowl, for \$1.25 an acre. Later he sold his holdings to a Russian fur seal hunter from the north coast who discovered gold on the land, whereupon 'Greek George' tried to get the acreage back again. A pitched battle between Greek and Russian was fought in the Bowl. Senor Eugene Plummer, an eye witness to this conflict, later came into possession of the land, and after holding it for 15 years sold it to a mail carrier named Teale and a furrier named Bonoff for \$2500.

#### Mexicans Lose Their Ranchos

"In 1860 Jose E. Valdez bought over a thousand acres of a Spanish land grant in West Hollywood and Sherman from Antonio Rocha, but because, following good Mexican tradition, he did not bother to record the deed, lost the whole grant to American settlers after having reared a large family on the old home place, and spending over \$30,000 in defending his title to the property. One son, Teofilo Valdez, later got a tract in the hills, where he raised sheep and cattle, and gave a home to his poor old father.



View from Mt. Olive in the Eighties and the Nineties.

The good Teofilo, living today at 1616 Hudson Avenue, has rebuilt the lost fortune, but has never forgiven the Americans for robbing his father.

"A little later, old, blind 'Uncle' Tomas Urquidez came home from a celebration of the Eve of St. John at Mission San Gabriel and found himself dispossessed of 'Casa Don Tomas Urquidez,' by the same Americans who had taken land away from Valdez. Old 'Uncle Tom' had no place to rest his head until one of his daughters, establishing a ranch in the hills like Teofilo Valdez, gave her father a home until his death. This daughter, Presenticia Lopez, died in the Krotana Hills in 1909 after having sold the last of her rancho to Eastern home-seekers at fancy prices. Carmen Avenue is named after one of her sons.

"Many years later 'Casa Don Tomas Urquidez' became part of General Otis' 'Outpost.' It is now used as the kindergarten for the Hollywood School for Girls. While Don Tomas owned it, it was the scene of the annual presentation of 'Los Pastores,' the Passion Play of the Spanish and Mexican families of the San Gabriel and Cahuenga Valleys. 'Los Pastores' was preceded by a whole week of feasting, song and merry-making and was last presented in 1878.

"In the sixties, Dona Cecilia Plummer, the Spanish wife of an

English sea captain, with her two little boys, Eugene and John L., escaped under cover of darkness in a sailing vessel from the port of Guaymas on the Mexican coast. The port was being bombarded by Maximilian's French fleet. She was shipwrecked on an island in the Gulf of Lower California, but finally made her way to Fort Yuma and then to Los Angeles. In 1869 she took up a Spanish land grant in the neighborhood of Santa Monica Boulevard and Gardner Street, raised great herds of cattle and sheep and successfully fought off American land grabbers in the courts, after having horse-whipped one of them out of court. Her son, Eugene, lives today on the 16 acres remaining of the great estate. His ranch, 7329 Santa Monica Boulevard, is still a happy meeting place of Spanish people from all Southern California, who enjoy his genial hospitality and his barbecued meat.

#### Hollywood, \$1.25 an Acre

"In the early seventies comes John Goldworthy, the government surveyor, who lays off all the Cahuenga Valley, aside from



Where now stands Hollywood-Cahuenga branch of the Security-First National Bank.

the Spanish land grants, into sections of 160 acres each. . . .

"From nowhere comes a fellow named Jim Donaldson. Then a man named Weid, whose son was named Ivar and whose daughter was named Selma. From the mines of the Bret Harte country comes the picturesque John Bower. All of these and others take sections of 160 acres. Bower gets the section centering at Hollywood Boulevard and Cahuenga. He sells it to pay off a debt for less per acre than the government price of \$1.25.

"These settlers found their land overgrown with an almost impenetrable cactus forest, from whose thorny heart yowled the wildcat and howled the coyote. The country at best seemed only fit for cattle and sheep raising, and once raised, the live stock was the prey of bandits.

"Tiburcio Vasquez, the most noted of California bandits, was as famous in California from 1863 to 1874 as Villa was in Chihuahua a few years ago. He pillaged the American farms from Monterey to San Diego, but spared his own countrymen. A reward of \$15,000 was offered for his capture. Some of his richest hauls were made in the Cahuenga Valley. . . . He was hanged.

#### The Frontier Passes

"With Vasquez out of the way, the annual rodeos were enjoyed more fully in the Cahuenga Valley. With the branding of the calves came the barbecue and the merry-making. The American cowboy and the vaquero vied with each other in feats of horsemanship. Slender, olive-skinned señoritas with flashing smiles and twinkling ankles danced the el jarave and the los camotes."



Tourists were brought out on the "Dummy."



---

# SMASH HIT

---

JUDGE Super X Negative solely on the basis of its reception by users. Placed on the market only a few months ago, it is already being employed in the majority of feature productions, as well as for various purposes of a special nature. Either of its striking advantages... greater speed, generally improved photographic quality... would have justified this swift, widespread adoption. Verdict of the industry: *a smash hit*. Eastman Kodak Company, Rochester, N. Y. (J. E. Brulatour, Inc., Distributors, New York, Chicago, Hollywood.)

---

**EASTMAN SUPER X**  
**PANCHROMATIC NEGATIVE**



## Miniature Photography

# PICTURES ON SCREEN

## Lantern Slide Comes Back

By KARL A. BARLEBEN, JR., F.R.P.S.



HE lure of the old-fashioned magic-lantern persists even today in the form of amateur movies—8 mm. and 16 mm. movies—which thousands of amateur filmers enjoy producing and showing on their screens at home. It is a far cry from the still lantern slide to movies, nevertheless, they are basically similar. While home movies satisfy a very definite need in the average home, it cannot be denied that some forms and types of pictures are best presented in the form of still pictures; lantern slides. It is said that there is nothing new under the sun, and that history repeats itself. This must be so, to a certain extent at least, for a surprising increase in the popularity of the old fashioned lantern slide, brought up-to-date, is quite noticeable. The continued use of the miniature camera of the Leica type can be largely credited for this, because the  $1 \times 1\frac{1}{2}$  inch negative area on standard 35 mm. cine film makes it easily possible to produce film and glass slides by contact with extraordinary economy. Let us for a moment look into this matter—we may find something of decided interest.

Beginning with a strip of negatives  $1 \times 1\frac{1}{2}$  inches on 35 mm. cine film, we have several avenues open to us; we can make contact prints on paper, which are rarely completely satisfactory owing to their small size, make enlargements of almost any desired size, or make transparencies either on film or glass for the purpose of showing on a screen a la magic lantern. The transparency possesses, as anyone who is familiar with them will agree, a remarkable brilliance which is totally lacking in any paper print process. There seems to be a clarity, depth, and wealth of detail in them that is nothing short of remarkable—to say nothing of interesting.

Two methods of making and using transparencies present themselves: film slides, and glass slides. Film slides are so well-known that it would be but a waste of time and space to go into a description here. The glass slide, however, is not so well-known. The standard miniature glass slide measures  $2 \times 2$  inches, a happy size which permits great flexibility. The regulation standard glass slide measures  $3\frac{1}{4} \times 4$  inches (in England,  $3\frac{1}{4} \times 4\frac{1}{4}$  inches square). The small  $2 \times 2$  inch glass slides are made and supplied by several American and European plate manufacturers, hence, are obtainable everywhere.

For the printing of positive film strips, the Eldia printer stands quite alone as an instrument for quickly and accurately making picture areas of  $\frac{3}{4} \times 1$  inch (standard motion picture frame area) and  $1 \times 1\frac{1}{2}$  inch. Pictures can be printed on the positive film in any order desired, regardless of their sequence in the negative strip. This is invaluable, as can be readily seen, for rarely do we make a strip of negatives in their proper sequence in the camera.

When it comes to making glass slides, the Eldur printer stands supreme. The Eldur is similar in its design and operation to the Eldia except that it provides for the accommodation of  $2 \times 2$  inch glass plates instead of a strip of positive film.

For commercial finishers, lecturers, and the like, who have large quantities of slide material to make more or less regularly, the Laver printer is suggested. It is a most versatile piece of apparatus, capable of making either positive film strips or glass slides at will. Naturally it is somewhat more costly than either the Eldia or the Eldur printers. These printing devices are designed especially for the production of miniature projection material, and may be secured from any local dealer or direct from E. Leitz, Inc., 60 East 10th Street, New York City.

Some workers favor the use of an enlarger, such as the Valoy or Focomat, instead of one of the contact printers mentioned, because by enlarging the negative image somewhat, objectionable areas of the negative can be eliminated, important sections made larger, and in general greater flexibility is afforded. Where the prints are made by direct contact, the positive must of

necessity be exactly like the negative, and this is not in all cases desirable. When using the enlarger for positive printing it becomes necessary to introduce a short extension tube between the lens and enlarger in order that a sufficiently small degree of enlargement be successfully produced. Such tubes are available. This of course refers to the use of the usual 50 mm. lens which is commonly used in the enlarger. The use of the extension tube can be entirely eliminated by using a long focal length lens, such as the 135 mm. lens. This will produce a sharp image at only slight enlargement of the image.

Various methods are in use; a few making good use of the Leica camera itself as the printer. In such a case the positive film (for making film slides) is loaded into the camera and the camera lens is removed. The image in the enlarger is projected down into it through the lens aperture, and the camera shutter makes the exposures. This method works out very well, but obviously it cannot be used when making glass slides. When making glass slides, the glass plate is centered on the enlarging easel and the image projected directly upon it—after the image has been adjusted and arranged to conform with the desires of the worker.

Many other methods will come to mind as one thinks about the matter, and the best method for the individual is the one which seems to be easiest and most practical. This is obviously a matter for the individual worker to decide for himself.

The details of actually making positive material for projection are the same as in the case of making similar material for standard projectors ( $3\frac{1}{4} \times 4$  inch slides), hence the reader is referred to literature dealing with the subject of lantern slide making in general for specific details as to procedure, formulas, etc. It is the purpose of this article to merely point out a few of the advantages of using the miniature equipment for this purpose.

One of the most vital problems which has not as yet been ironed out is whether to make and use film slides or glass slides. Surely the former have very decided advantages; a film slide of fifty or more pictures can be carried in the vest pocket without inconvenience; it cannot break; it is light in weight, weighing hardly anything at all; and it is very cheap to make up. On the other hand, one cannot change the sequence of pictures once they are printed on the film slide, and most important of all, the film is subject to deterioration and scratching—this being the one outstanding fault which can be found to count heavily against film material. As to scratching, however, Teitel's new Scratch-Proof Solution, which was introduced for the first time to amateurs late in July, 1935, has done a great deal to eliminate this evil. The Scratch-Proof Process has been used for years by the major motion picture producing companies as a preservative on their valuable master-negatives and positives. The process was a secret one, and was not released to individuals until last July, as previously mentioned. Now, however, it is supplied in bottles to the trade so that the individual may avail himself of its remarkable properties. Briefly, this solution impregnates the emulsion with certain oils or waxes which render the film so tough that it requires a sharp instrument to make anything like a scratch on it. "Ain't that sumthin'?" Frankly, Teitel's Scratch-Proof Solution is the answer to thousands of miniature camera enthusiasts' prayers for not only their positive film slides but valuable negatives as well.

It is nothing more than the frequent rolling and unrolling that in time causes scratches to appear on the film, and once this is overcome, the film strip is in a fair way to become immensely popular.

The glass slide of  $2 \times 2$  inch size, it must be noted, has its own particular advantages. The slides are very inexpensive, and because of their small size do not break or crack so readily as the larger ones, even when dropped on hard surfaces. Then



again, being individual, their order or sequence can be changed at will, this being often necessary to lecturers and the like who may have occasion to change their talks from one performance to the next.

There are really two methods of preparing glass slides. The first is the well-known routine by means of which a sensitized glass plate is printed and developed in the usual way. The second consists of cutting each picture in a film slide strip apart and mounting it between two cover-glasses, binding them together in the usual manner. Both methods are highly satisfactory, and the choice rests with the individual worker. Glass slides offer ample protection to the emulsion in both cases, and can be cleaned and polished after each showing without the

for it has mighty interesting advantages, and is a welcome relief from tedium for those who think they have exhausted all the possibilities of their small camera. Visit a local dealer and get the details about the equipment mentioned here—I'll wager that it won't be long before you step out and order suitable accessories for your particular needs and shortly after that you will be spending your evenings, or at any rate most of them, by the home fireside with your family, having oodles of fun with this new form of entertainment.

#### From Kodak Abstract Bulletin:

CINEMATOGRAPHY IN RELIEF AND THE NEW PROCESS OF LOUIS LUMIERE, P. Hemardinquer. Rev. Franc. Photog. 16:65-8.



"Winter Shadows"

"Late Afternoon on Lake Winnepesaukee"

"Snow-laden Boughs across the Brook"

slightest fear of damage. Natural color pictures, such as the Dufaycolor, Lumiere Filmcolor, and DuPont DuPac processes are always best mounted between glass for protection and permanency.

After the positive pictures have been made in either film or glass, the next step is naturally to project them. Only a short time ago it was something of a problem as to what to use, existing projectors being either too bulky or too expensive for these miniature sized slides. Today there is quite an array of moderate priced projectors on the market, the most popular of which is undoubtedly the Leitz Umino projector, a small, compact machine which is made primarily of bakelite and weighs next to nothing. In spite of its small size, it accommodates not only film slides of  $\frac{3}{4} \times 1$  and  $1 \times 1\frac{1}{2}$  inch areas, but also the miniature standard  $2 \times 2$  inch glass slides. The projector may be equipped with either a 50 or 100 watt lamp; ample illumination for even natural color pictures provided the screen area is not too large. The Umino projector is ideal for home and office use.

Where pictures are to be shown in large halls and auditoriums, a more powerful projector, such as the Udimo-300 or Udimo-500, is required. These machines are naturally more costly, and they also accommodate all forms of miniature camera slides, as in the case of the Umino. Natural color specialists generally find it more advantageous to have one of the more powerful Udimo projectors so that even their dense color pictures can be "cut through" and projected upon the screen without loss of light.

As to the applications, think of the value of screen material for salesmen, educators, lecturers, and organizations, to say nothing of amateurs who just like to show their pictures in enlarged size on a screen for the entertainment of friends and themselves at will. One acquaintance of mine regularly copies the "funnies" in the newspapers with his Leica and sliding focusing copy attachment, for his children. These he shows them as a reward for being good or some such reason. Strange to say—or is it so strange—the kiddies never tire of seeing the old ones over and over again, along with the latest. This amateur has now quite a library of slides of the funny sheets, as may well be imagined. He likewise makes slides of most of his snapshot pictures, especially of the kiddies. Maybe they don't like to see themselves almost life-size on the screen!

There are so many ideas connected with this "by-product" of miniature camera photography that a book could easily be written on the subject, and then leave a good deal to say. It is hoped that these few words on the subject will at least stimulate many amateurs into activity in this rather new field.

Phone GLadstone 4151

### HOLLYWOOD STATE BANK

The only Bank in the Industrial District of Hollywood  
under State Supervision

Santa Monica Boulevard at Highland Avenue

No. 365, March 1, 1935; Photographes 22:61-4. No. 381, March 5, 1935; Photo Revue 47:154-6, May 15, 1935. Numerous inventors have worked on the problem of projecting images in relief. Much of their failure has been due to lack of study of elementary psycho-physiological principles. The sensation of relief is the result of binocular vision. The principle of stereoscopic projection and especially by anaglyphs is very old. The simple form in which eyeglasses with red and green complementary colors were used presents grave difficulties of ocular fatigue and imperfect images. Lumiere has made improvements in suppressing optical fatigue and in obtaining perfected images by correlating his improved projected images with his new viewing glasses.—C. E. M.



### CAMERA & PROP RENTALS

Camera Supply Co.  
1515 Cahuenga Blvd.  
Hollywood, Calif.

Ruddy Geraus, Manager  
Gladstone 2404

Nite Phone GLadstone 6583  
Cable Address — "CAMERAS"





# THE MINIATURE CAMERA IN RESEARCH AND PERMANENT RECORDS

By HANSENA FREDERICKSON

Dr. Louis K. Koontz, of the History Department of the University of California at Los Angeles, is making use of Leica negatives in his Historical Research. While in Washington last winter, he gathered a group of men together whose interest in the use of photography in the scholar's research field, in the filing of records, and in the spreading of unavailable documents throughout the country, has been constructive. These men are pioneering in the field, and their findings are interesting to all photographers, as this branch has a valuable, practical use which is destined to grow as its advantages are realized.

The use of film files in the Library of Congress in Washington make their records easy to group, arrange, and alphabetize, and easily available to the widespread public previously denied the use of these records for reference work. As the use of this means of spreading valuable records increases, the scholar in small towns will have the resources of our great libraries at his disposal for a minimum cost.

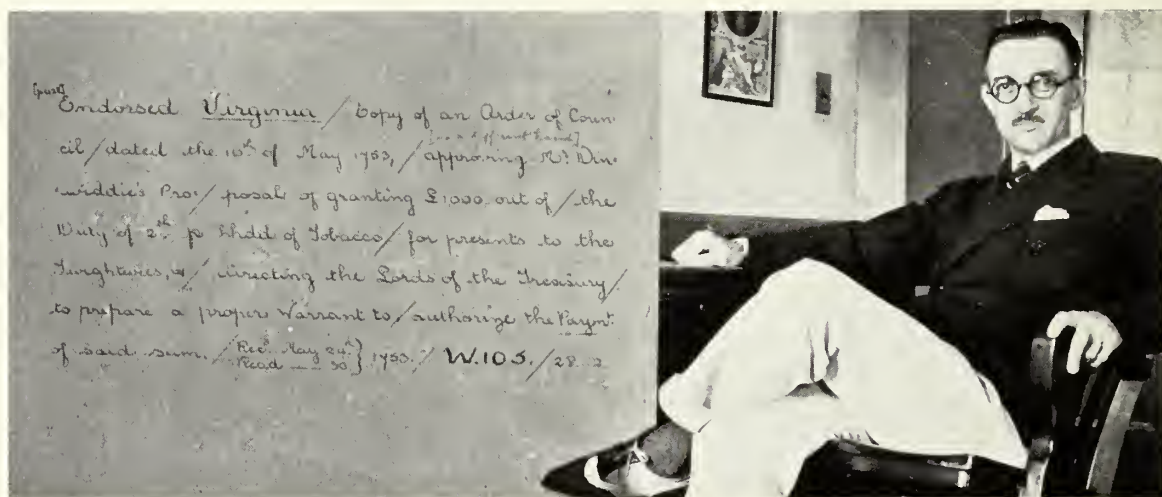
A joint committee on materials for research, with Robert Binkley as chairman, and T. R. Schellenberg as Executive Secretary, finds that "through the further introduction of copying cameras in great central depositories, and of equipment for reading the film copies in various libraries throughout the country, research materials could be made much more mobile. Research libraries on film could be built up at a cost as low as fifteen to twenty-five cents per hundred pages. Through micro-

up very little space, are cheap, and easily filed.

The New York Times is experimenting with the advisability of using film as a means of keeping a permanent record of its daily sheets. Various methods have been tried throughout the years, but the search for the most satisfactory method still goes on. They have found that their present systems occupy 108 cubic feet of space for a year's file of The Times, while the same record on film would occupy one-third of one cubic foot.

In government records, very specialized research reports are filed and the cost of reproduction of these has been prohibitive. It was found in reproducing the hearing of the N. R. A. and the Agriculture Adjustment Administration reports, that one-half million pages of records are kept in Washington. In attempting to make these available to scholars who needed records, they found that the regular copies could be furnished to them for \$10,000 a copy. There were no orders placed. Later, copies were made on film for \$600, and many students availed themselves of these micro-films.

Banks in various parts of the country are also beginning to use films in their records. They film cancelled checks with the Recordak, a subsidiary of Eastman, and keep these film records on file for immediate reference when any dispute arises. They are also using this method of preserving their ledger pages, and cutting time and cost in this manner. A bank pays \$5.00 for 200 feet of Recordak safety film, which is enough to pho-



A page from a transcript in the Library of Congress, the original of which is in the British Public Record office. This copy was made by Dr. Louis K. Koontz, professor of History at the University of California at Los Angeles. Leica picture taken at f3:5½ second exposure with light from one window.

copying, gaps in library holdings could be filled, manuscript collections made complete, newspaper files supplemented, ephemeral material preserved, and the needs of the individual scholar for specialized research met."

The very practical use of this method of making records available to the public is experienced at the Huntington Library in San Marino, California. This museum has a group of priceless Shakespearian manuscript, to study which men have previously been sent over here from England at great expense and loss of time. Leica-copied films are now sent to them at about \$5.00 for one hundred pages, and with little more lapsed time than is necessary for an exchange of letters.

In the University of Arizona at Tucson, an account of every student's record is kept on file in film form; his semester's grades are recorded with a photograph of himself. These records take

up 16,000 checks or to make dual records of 4,000 statements.

Dr. Koontz spent last winter in Washington, London, and Paris searching for all available documents pertaining to Robert Dinwiddie, concerning whose life and influence on George Washington he is writing a book. In order to retain a word for word record of his findings he brought 500 film pictures home with him and more are continually being sent to him on this subject. His interest in the use of film for spreading valuable research material is very practical, and he is spending much time in interesting his colleagues in this field. He has found that the Leica, Contax, Eka, Recordak and Folmer-Graflex are applicable to this work. Dr. Koontz does his own work with a Leica and a No. 3 front lens attachment, which he finds to be easily handled.



# Recent Photograph and Sound Patents

By ROBERT FULWIDER

Registered Patent Attorney

2,001,263—Device for Working with Lenticulated Film. Kurt Rantset, assignor to Siemens & Halske Co., Berlin, Germany.

2,011,271—Television System. B. Croffari.

2,011,342—Motion Picture Pull Down & Shutter Mechanism. Joseph Milhalyi, assignor to Eastman Kodak Co.

2,011,350—Control for Motion Picture Camera. Otto Wittel, assignor to Eastman Kodak Co.

2,011,352-2,011,353—Apparatus for Copying Motion Picture Film. John G. Capstaff, assignor to Eastman Kodak Co.

2,011,544—Color Photography. Isaac Rodman, assignor to Liktophone Corp., Jersey City, N. J.

2,011,576—Method of Producing Motion Picture Film. George J. Gage, Seattle, Wash.

2,011,602—Motion Picture Pull Down. Otto Wittel, assignor to Eastman Kodak Co.

2,010,186—Container for Film Rolls. Leo Goldhammer, assignor to I. G. Farbenindustrie, Frankfurt on the Main, Germany.

2,010,188—Process of Fastening Photographic Film on Support. Max Hagedorn, assignor to Agfa Ansco Corp., N. Y.

2,010,388—Photographic Emulsion. Olaf Block, assignor to Ilford, Ltd., Ilford, England.

2,010,459—Photographic Sensitive Element. Manes & Godowski.

2,010,564—Motion Picture Camera. Harry R. Schenck.

2,010,959—System for Correcting Sound Records. Roy J. Pomeroy, assignor to R. C. A.

2,010,951—Apparatus for Recording & Reproducing Sound. Arthur C. Hardy, assignor to General Electric Co.

2,011,624—Loader for Cinematograph Cameras. B. J. D. Gana, assignor to Ilford Ltd., Ilford, England.

2,011,919—Operation of Motion Picture Projecting Apparatus. Joseph Tavani, Philadelphia, Pa.

2,011,932—Projection of Motion Pictures. H. E. Ives, assignor to Bell Tel. Lab., N. Y.

2,012,044—Automatic Synchronizing Means for Cinematograph and Phonographs. Ed. S. Hopkins, N.Y.

2,012,130—Film Guiding Device. Ed. W. Kellogg, assignor to R. C. A., N. Y.

2,012,145—Cinematograph Apparatus. H. H. V. Stanley, assignor to Electrical & Musical Industries, Ltd., England.

2,012,352—Motion Picture Camera. H. R. Zuilen & N. Rusting, The Hague, Netherlands.

2,012,514—Swinging Finder Mounting. Geo. A. Mitchell Camera Corp., West Hollywood.

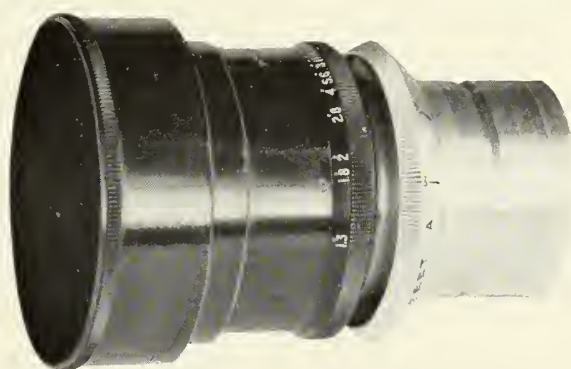
2,012,515—View Finder Parallax & Lens Focusing. Mechanism for Motion Picture Cameras. Geo. A. Mitchell, assignor to Mitchell Camera Corp., West Hollywood.

2,012,628—Camera Support. Albert S. Howell, assignor to Bell & Howell Co., Chicago, Ill.

## Bell & Howell Presents NEW COOKE F 1.3 SPEED PANCHRO LENS

by Taylor, Taylor and Hobson

● Bell & Howell's new TTH special 2¼ inch F 1.3 Speed Panchro Lens combines all of the color correction and definition of the B&H Cooke F 2 Speed Panchros. Flare characteristics extremely good. Critically sharp coverage over sound motion picture aperture. An invaluable lens under extremely adverse lighting conditions, bringing crispness and life to the finest detail. Deliveries now being booked.



### Cooke F 2 Speed Panchros

Especially designed for use with today's film emulsions and incandescent lighting. Used almost exclusively in all class A studios the world over. Cooke Speed Panchro lenses are well corrected for all other aberrations as well as the chromatic. Ideal for color processes employing regular cameras. Modified Speed Panchros have proved their superiority for Technicolor. Eleven focal lengths, 24 to 108 mm.

### B & H Cooke Varo Lens

Provides the magic "zoom" which has distinguished so many of the better films. One crank moves all parts. Iris varied automatically with focal length to keep *f*/value constant. Critical sharpness at all points of the "zoom."

## BELL & HOWELL COMPANY

Exclusive Distributors

1848 Larchmont Ave., Chicago; 11 West 42nd Street, New York; 716 North LaBrea Ave., Hollywood; 320 Regent Street, London (B & H Co. Ltd.). Est. 1907.



# COMPO

By ROBERT H. BROWN

Instructor of Photography, Polytechnic Institute

**I**T is appropriate that the thoughtful man approach the study of composition with considerable caution, for he is well aware that he travels a path beset with pitfalls and that, at every turn, conflicting theories of art confront him. On the one hand, it is suggested that composition is a gift of the gods, the concomitant of genius; on the other hand that composition is acquirable, based on clearly defined art principles and subject to known rule. With the latter contention we are here concerned, for it is the writer's opinion that few geniuses will pause to peruse this page, and certainly for the greater portion of mankind, art should invariably be based upon order. In other words, when we speak here of composition, we speak of a combination of parts to form a harmonious whole, and we speak of harmony not as occult or accidental, but deliberate and designed.

The admission then, that there may be guiding principles is the first step. A selection from among these is the second; and here we are at once impressed with their number, their variety, their apparent arbitrariness, and the diverse terms with which they may be defined. This situation, however, need not disturb the photographer, for it would seem to be his problem to choose simply that which suits his purpose, since he is under no artistic compulsion to uphold the past, but only to explore it for his own profit.

We shall discuss here very briefly and entirely from the photographic point of view, BALANCE, UNITY and PERSPECTIVE, because these, by any name, are basic, and the simple structural foundation they afford has been tested by time.

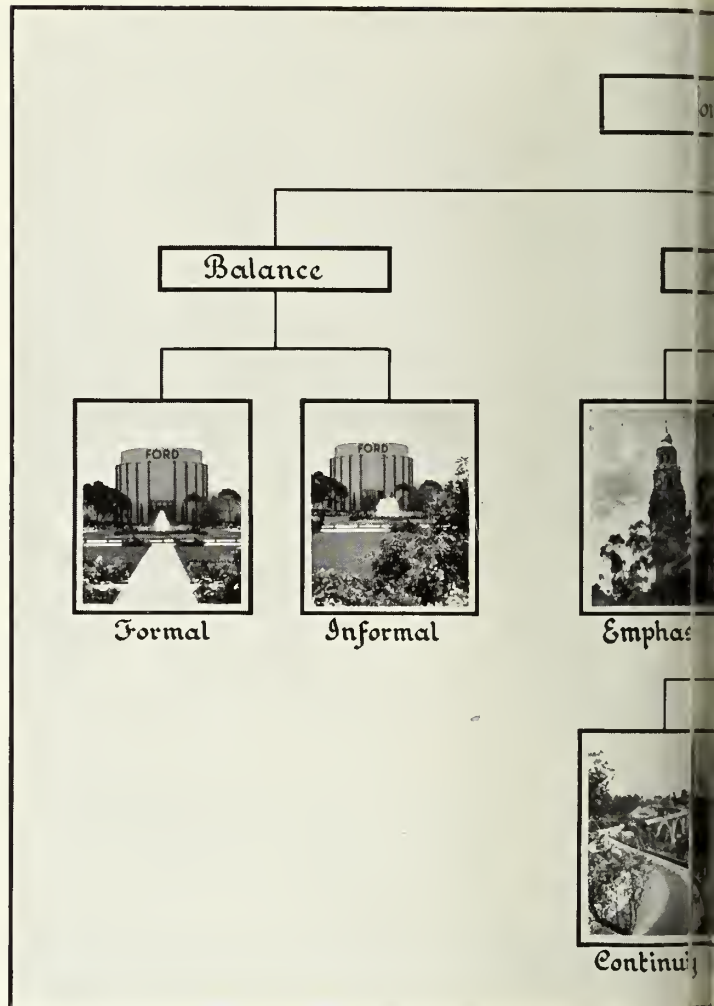
BALANCE—Balance has been defined as "a restful effect obtained by grouping shapes and colors around the center in such a way that there will be equal attraction on both sides of that center." These arrangements of identical or equally impressive masses, lines and colors may be placed at equal distances from the center and the result is known as FORMAL BALANCE. If however, the lines, masses or colors vary in their power to attract, the balance is maintained by a shifting of position and proportion and is referred to as INFORMAL. For example, in the same fashion that the little boy moves out and the big boy in, to balance each other upon the see-saw, smaller masses, less emphatic lines, or inconspicuous colors may be given added importance by a position near the edge of the picture. Or we may balance less of the prominent with more of the subdued. Balance is a subject for considerable study and the practical applications of its principles are many.

To illustrate these two types of balance as they function in photographic composition, the chart shows two views of the same scene shot from different angles. The first is as formal as the situation permits, that is to say, the building occupies the center of the picture, and, on either side, similar masses of

**S**IR MALCOLM CAMPBELL'S arrival in Salt Lake City with his giant "bluebird," meant a call for several Scotch and sodas, also for newsreel men from all parts of the West to point their flivvers toward the Bonneville Salt Beds which are located in Northwestern Utah near the Nevada border.

Sir Malcolm has the bad habit of putting in a 4:00 o'clock call, giving his "bluebird" a couple of bird seeds and rolling it out on the starting line. This meant the news hounds had to stick right on the job and, as the salt beds are 125 miles from Salt Lake City, we chiseled some tents, cots and trailers, which when erected (according to Joe Rucker, and he ought to know) looked like Little America; so christened it Camp Rucker.

A few more Scotch and sodas, a crap game, a little black-jack and four winks of sleep and Sir Malcolm was ready to start. And that gentleman takes his racing very seriously; his mechanics tow his racer to the start, get it all gassed and



## NEWS REELERS

By SANFORD E. GREENWALD

ready; Sir Malcolm drives up in his Rolls-Royce, gets into his koveralls, puts on his goggles, his boys help him into the car and he's off. That's when we start working. The salt beds are pure white and, if it were not for the terrific heat, one could easily imagine being on a snow-covered plain.

Malcolm makes a trial run, a mere 250 miles per, and pulls up to the judge's stand. Says Sir Malcolm: "Now just what bloody pictures do you chappies prefer?" That's a large order to spring on a bunch of hungry news photographers and he got plenty of answers back in a very short time. We finally made Lee Orr, of Fox Movietone, our spokesman (that was a smart move as we knew Campbell was the editor of Movietone in England).

After Frank Vail got a few buckles and I forgot to switch my lens over and Sir Malcolm did the whole thing over we retired back to Camp Rucker, where we packed the film and sent it by car to Salt Lake City to be shipped air express for the current release in New York (which called for another Scotch and soda.)

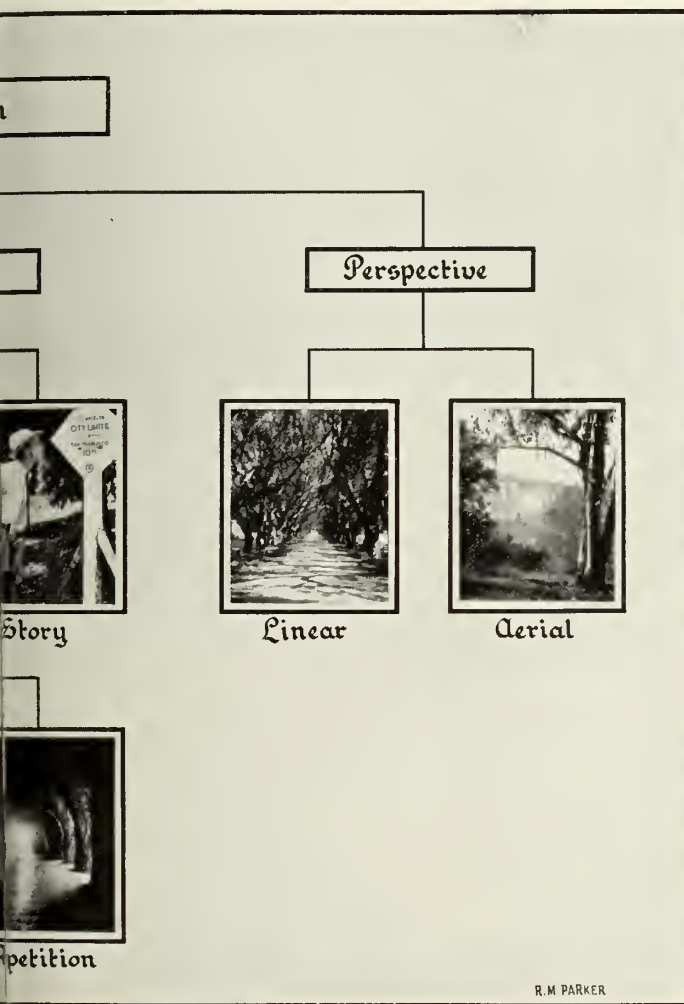
The second day out Sir Malcolm started at sunrise and pushed "blebird" across the measured miles at over 304 miles per hour and narrowly escaped disaster when he blew a rear tire going better than 280. The tire was in threads and red



# S I T I O N

## PARKER

Evening High School, Los Angeles



## THE SALT BEDS

Metrotone News

hot, the mechanics having to wait for it to cool before they could change it. Freeman, of Universal News, who was flying above the course and making the air shots for all, landed and covered the tire sequence and when the other men found out he had the pictures they immediately claimed they were entitled to them as he was covering for all in the air, but Merv thought differently which called for an argument and—another Scotch and soda.

Sir Malcolm had to make his return run within one hour to qualify for the average run in both directions and after a quick tire change and check up he was off again, making the return run somewhere around 296 m.p.h. The A.A.A. officials claimed the intrepid Briton fell short of the 300 mile record by a fraction of a tenth of a mile and Sir Malcolm, good sport that he is, was ready to try again the next day, but after going over the figures they discovered their mistake and notified Campbell that he had averaged over the 300. Sir Malcolm left immediately for Salt Lake City unbeknown to the newsreel men who were busily indulging in a poker game at Camp Rucker. When we heard the news we shoved off for the city and made a statement from Campbell on the roof garden of the Utah Hotel. And that was that, which certainly did call for another Scotch and soda and another and another until far, far into the night.

shrubbery and garden balance one another. The result has dignity but perhaps also to some degree, dullness, suggesting as does all such precision, the mathematical exactitude of the measuring stick.

The informal arrangement obviously allows the photographer more latitude. Here the building appears in the upper lefthand corner of the picture and is balanced by a mass of foliage in the lower righthand corner.

Either balance is acceptable. Both achieve that restful effect of which we spoke in the beginning.

UNITY—Unity may be defined as the art principle which ties together the elements and ideas in a picture. It is directly related to balance, is sometimes used as a synonym for harmony, and is often and rightly referred to as the crowning achievement of composition.

In the illustration labelled EMPHASIS, the tower is obviously of primary importance. All other elements are subordinated to it, and assume simply the function of balance, background and atmosphere. There is no possible division of interest, and the photographer's intention is plain.

In the picture called STORY, the idea itself is the device that ties the whole together, and captures the attention. All eyes turn toward the sign following those of the central figure.

Rightly used, REPETITION (a form of rhythm) is an effective means of securing unity. As shown in the illustration, forms regularly repeated carry the eye along so that movement is created and directed. It must be remembered, however, that regularity may pass over the line into monotony. Spacing and proportion are important, and shapes and sizes need not be identical. In the case of the arches, perspective accomplishes our purpose and introduces variety. The arches diminish as they recede, each supplying what someone has referred to as a "broken echo" of the other.

The essence of CONTINUITY is logical sequence. Observe that, in the illustration, the eye passes pleasantly through the picture by means of the boulevard, meeting no obstacles that would obstruct the easy movement of the arrangement. The curves produce undulation and flow, a consideration of which again returns us to rhythm. It might be mentioned in passing that continuity is emphasized in the field of advertising, where the picture must be arranged so that, no matter where the eye enters, it will inevitably be led to the advertised product.

PERSPECTIVE—Perspective is that quality in a picture which produces a feeling of depth or third dimension. This is of vast importance to the photographer because the single lens lacks stereoscopic quality. The photographer supplies this lack by utilizing both LINEAR and AERIAL perspective. In the case of LINEAR perspective, the feeling of distance is brought about by converging lines (see trees) which appear to come together at some far point. AERIAL perspective is dependent upon atmospheric conditions such as fog, snow, rain, smoke or dust, which tend to diminish the distinctiveness of objects as they recede from the eye. In this fashion depth is created and also, to a marked degree, drama. In the illustration, the intervening haze has rendered the bridge remote and indistinct, and one is conscious of vistas beyond the tree.

Perhaps it might not be amiss to conclude this series of definitions by remarking that definitions are dangerous. Rules in the field of photographic composition are dangerous. It is important that all such rules be considered as rungs of a structural ladder. A ladder is merely a means to an end. It is impossible to hide behind it. No sturdy individuality will try.



Newsreelers of the Salt Beds—Sir Malcolm Campbell and son seated in front, at hotel in Salt Lake City.





The Fisherman. Photo by John Caldwell. Taken with a Dolly Camera and Xenon f:2 lens.

**MORE on Dufaycolor:** Despite the fact that quite some space was devoted to Dufaycolor last month, the opportunities it offers, for indoor color pictures, make it deserve more space, in view of the longer evenings we are having at this time of the year. Making Dufaycolor pictures is an ideal method of spending these evenings. There are many small objects at home which will make splendid subjects. Colored vases, artificial flowers, decorative figures, etc., can be grouped against a suitable background to make good color composition.

Portraiture with Dufaycolor is another joy of miniature camera photography. In this work the use of colored gelatines should not be overlooked, the gelatines being employed in the manner of a spotlight. When a sheet of colored gelatin is used in this manner it might be well to take some color pictures without the use of the blue Wratten 78A filter. The colored light produced by the gelatines may obviate its use. The ideal procedure would be to take two "shots" of each pose, one with the use of the blue Wratten 78A filter, and the other without it.

We would suggest that the photographer experiment somewhat when exposing Dufaycolor film indoors for the first time. A few usual subjects can be selected, such as one or two colored objects in the home, a portrait, and about two or three varying exposures given on each subject. When the film is processed the photographer will be able to determine the correct exposure for the Dufaycolor Film with the use of Photo-flood illumination.

**Teitel's Scratch-Proof Method:** In the August issue of INTERNATIONAL PHOTOGRAPHER a typographical error appeared in a description of the above product, which may have been misleading to some readers. The sentence in question read as follows: "It is known as the 'Teitel's Scratch-Proof Method,' and has not been made available to the miniature camera photographer." The word "not" should have been "now" for this product is now obtainable at most all photographic dealers.

**Controlling Print Contrast:** The usual method of controlling the contrast of the print known to the amateur, is through the choice of the printing paper. The harder the grade of the paper the more contrasty is the resulting print. The choice of the type of printing paper to be used is however normally dictated by the contrast of the negative. Weak flat negatives require a hard paper, normal negatives a medium paper, whereas a dense contrasty paper will necessitate the use of a soft grade of paper.

A method of exercising control over the contrast of the print, which has been recommended in this department in the past, is through the adjustment of the exposure time of the paper and its developing time. Exposing the paper for a shorter time and giving it a relatively long, full development, will result in a print with more brilliance and snap, than if the paper were to receive a longer exposure with a consequential shorter developing time. There are limits to this procedure. The paper

## MINIATURE CAMERA PHOTOGRAPHY

cannot be left for too long a time (over about two minutes) in the developer for it will fog. It is quite a simple procedure, but it works.

The constituents of the developing solution are also a factor in determining the contrast of the print. In the usual M-Q developing formulas it is the relation between the quantities of metol and hydroquinone which control the print contrast. Metol produces soft results, and hydroquinone a hard contrasty effect; thereby, by increasing the amount of hydroquinone the contrast in the prints is also augmented. Metol will produce opposite effects.

If the amount of bromide is increased there will also be a rise in print contrast. In this case potassium iodide will produce an opposite effect. When added to a developer the latter will yield softer results. These two chemicals can therefore also be employed to control the contrast of prints.

**Single Condensing Lens in an Enlarger:** Many photographers may have noticed in examining some makes of enlargers on the market, that their condensing systems consist of but a single lens with its plane surface towards the film. The usual double lens condenser gathers more light, but it also readily shows the defects in the negative.

A single lens condenser with its plane surface towards the film, emits parallel rays, which reduce the effects of grain, and also minimize scratches and other surface defects in the negative. In some enlargers as the Leica enlargers, such condensers also act as pressure plates, thereby eliminating the use of glass negative carriers, which means less surfaces to become dirty or to gather dust.

**Tone in the Print:** Many photographers have noticed that in some cases their prints have a warm black tone, whereas at other times the black of the print is "cold." We are continually speaking of fine grain in miniature camera work, and here again it is a factor. The finer the grain of the paper, the more towards yellow-brown does the color progress. This is no doubt the case with the slower papers, such as chloride and chloro-bromide papers which are inherently warmer toned than the fast bromides, most likely, because of the finer grain possessed by slower emulsions.

The developer is also a factor. Developers weak in alkali produce finer grain, and consequently warmer toned prints. The miniature negative is not the only factor in which fine grain is of importance.

**The Negative Question:** There is no doubt that the ownership of a miniature camera means the making of a considerable number of pictures. The small camera is so easy to carry about, so quick to operate, that few opportunities are missed. To make pictures may not be a difficult matter. Developing is a procedure consuming about an hour or less; but printing that is an entirely different matter. The roll of miniature negatives may contain any number up to about 36 negatives, and to make 36 good prints does require quite a bit of time. Many of us have our time limited, and the result is that the number of negatives to be printed keeps mounting continually, until we find that our printing schedule is perhaps one or even two years behind. This happens in many cases.

What is the remedy? A close inspection of the negatives on hand will usually reveal that many are the same subject taken from different angles, and then again there are some which are not needed immediately, but may be of use at some future

**35mm. Eastman or Dupont**

Fresh Gray Backed Negative

Price 2½c per Foot

for

AMATEURS or PROFESSIONALS

**KINEMA KRAFTS COMPANY**

6510 Selma Ave. Hollywood, Calif. GLadstone 0276



date. The photographer can make contact prints of his negatives, and from these contact prints select those from which an enlargement is to be made. The contact prints are then mounted on the page of a loose leaf book, the number of the negative and the date being entered on the page. This is really an efficient filing system. In this manner, the photographer can always refer to his book of contact prints whenever it is desired to make an enlargement of a particular subject. Enlargements of each negative will not be required, which means that more time can be devoted to filing away the rolls of negatives, instead of having them lie about, waiting their turn to be printed.

**Pictures of the Moon:** A question has arisen in the case of an amateur who attempted to photograph the moon, giving 30 minute exposures, and instead of obtaining a round image of the moon, the negative revealed a streak. This is not the fault of the camera, film, developer, etc. Mother Earth is the one to blame. Let us go back to our grammar school days for a moment. The earth is continually revolving about its axis, which is responsible for the sun rising in the morning, traveling across the sky during the day, and setting as evening approaches. This is also true of the moon; it is continually moving across the sky which accounts for a streak being produced when a time exposure is made. Shorter exposures are necessary, which calls for both fast films and lenses.

**A Guide to Enlarging:** One of the things left to the judgment of the photographer in enlarging is the choice of the type of printing paper for the negative being enlarged. To facilitate matters the photographer can obtain from his dealer a chart containing the different types of negatives, i. e., thin weak negatives, contrasty negatives, etc., and listing the kind of paper to be used for each type of negative. The photographer merely has to compare the negative to be printed with those on the chart to determine the correct type of paper to use.

**Removing Dust from Negatives:** Dust and small hairs are tremendously annoying at times in printing, causing small spots and white lines on the print. To obtain a print free from such detriments it is necessary to remove the dust and small hairs, and it seems that a diversification of ideas exists as to the ideal tool for this purpose. Many amateurs recommend a soft chamois skin, others a baby's hair brush, or a camel's hair brush that is ordinarily used for swabbing throats, and which may be obtained at any drug store. It really does not mat-

## BY AUGUSTUS WOLFMAN

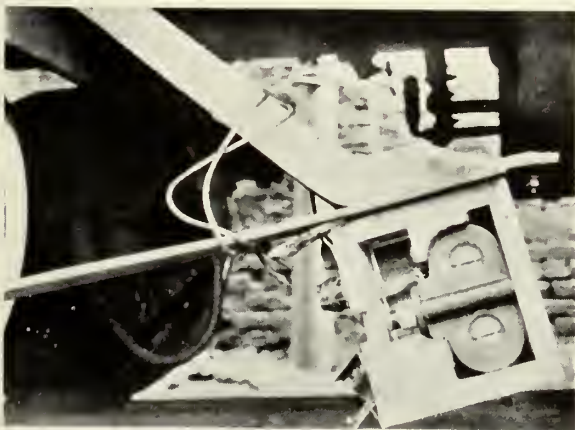


ter which expedient is employed for this purpose, as long as it is soft, so that it will not scratch the film.

While on the topic of removing dust, we might mention that before enlarging is commenced the negative should be inspected for finger prints and grease marks. These can easily be removed with a suitable cleaning fluid such as Carbona, Nacto or carbon tetrachloride. A wise procedure is to keep a jar of cleaning fluid with a chamois skin in it continually at hand. In this manner the chamois will always be kept soft and saturated with the cleaning fluid.

**When Purchasing Chemicals:** Amateurs are prone to forget that many chemicals are supplied in different forms such as crystal form, dried form, etc. When purchasing chemicals the photographer should refer to the formula to find the type it calls for. Thus we may take the case of sodium sulphite. The crystal form contains only about half the amount of sodium sulphite as is contained in the dry form. To use the crystal form when the formula calls for dried sodium sulphite is akin to using half the amount of the chemical required; unless the photographer is acquainted with the "strengths" of the two forms of this chemical, and uses the proper larger quantity of crystals in a formula calling for the dried form.

## Slow-Motion Pictures Help to Check "Rough Riding" on Super-Fast Trains



Motion Picture Camera mounted to "shoot" moving wheel of oscillating speed-train truck.

How smoothness of riding for passengers of super-fast trains, of the streamline and other modern types, has been improved as the result of studies made by slow-motion pictures is an interesting story of American business and its use of scientific methods.

About a year ago, the Chicago, North Shore & Milwaukee Railroad, the high-speed electric line running between Chicago and Milwaukee, decided to conduct an investigation of track oscillating or "nosing"—a transportation factor which, because of its contributing to uncomfortable riding, has become increasingly objectionable on all railroads as speed has been increased.

A slow-motion 16 mm. Bell & Howell motion picture camera was mounted in a box on a bracket on one corner of a truck which was guilty of nosing. Solenoid control started the camera after the car had reached a speed above 60 miles an hour, when noticeable nosing commences. The camera was focused on the lower part of the wheel where it contacts the rail, and pictures were taken of a worn wheel as found in service and then a new replacement wheel. When the films were projected both the worn and the new wheel were seen to oscillate with

a regular and continuous motion. The only difference noticeable in the movies of the two wheels was the less violent action of the new wheel due to the fact that this wheel had less clearance between flange and rail than did the worn one. This led to the belief that the oscillation was caused by the taper of one inch in twenty which has been a part of the standard design for railroad wheels.

On this belief, a set of wheels was turned without any taper but with the flange kept the same shape and size as formerly. Slow-motion pictures taken of these wheels showed no regular oscillation at all; in fact, the flange seldom impinged upon the rail on a straight track. The riding of the car was greatly improved, as there was no more nosing. The test car was put into regular service and watched as to wear of wheels and riding quality. The wheels wore with some taper due to the rails being worn that way by the standard wheels, but slow-motion pictures taken after 30,000 miles showed only a slight tendency toward oscillation. This car is still in service and is being carefully watched, but the results of the test have been so conclusive that all new wheels and those re-turned are of the new type without a taper.

Says a Chicago, North Shore & Milwaukee Railroad official: "A number of railroad men from other lines have viewed the slow-motion pictures and have applied the principle to their equipment, especially in the case of the new streamlined trains, and greatly improved riding has resulted."

## GOERZ

- Lenses for every purpose.
- Filters of Modern Design.
- Exposure Meters.
- Reflex Focuser.
- Effect Device and Mask Box.
- Shutters.
- Beira Miniature Cameras.
- Film Cameras with Goerz Lenses.

Literature on Request

C. P. GOERZ AMERICAN OPTICAL CO.  
317 East 34th Street New York

# Motion Picture Sound Recording

## Chapter XXII

**I**N this chapter, we conclude this present discussion of the microphones used in motion picture sound recording. The subject of microphones will be revived in later chapters to consider the ribbon, dynamic, and crystal microphones, now so widely used in high-quality sound work. That discussion has been diverted to a later date so that too much consideration of one portion of the sound recording equipment used in studios will not be permitted to weigh down this present series of chapters.

### CONDENSER MICROPHONE BATTERIES

As in the case of most other audio-frequency amplifiers, two sets of batteries are required to supply the filament and plate current demands of the condenser transmitter amplifier in a condenser microphone. The filament supply is usually obtained from a six-volt storage battery; and when a battery of that voltage is used, no external filament resistance is required. When, however, a twelve-volt filament supply is used, an external adjustable filament rheostat is necessary to limit the filament current to the correct value. A filament ammeter of the proper range is desirable, also, in such cases to permit the proper regulation of the filament current to the required 0.25 ampere value.

Since the plate current drawn by the tubes in the condenser transmitter amplifier, or **CTIA**, is quite small, a 200-volt set of heavy-duty radio **B** batteries is generally employed for this purpose. These batteries are placed in a grounded metal battery box. The grid-bias, or **C**, voltage for the grid of the amplifier tube is obtained from the drop in potential across a portion of the resistance in the filament circuit. This will be evident in the accompanying diagram, where **R<sub>f</sub>** is the filament resistance across which this **IR** drop occurs.

### CONDENSER MICROPHONE CABLES

To carry the filament and plate current to the microphone amplifier, a six-conductor shielded cable, known as the microphone cable, is employed. The metallic shield on the outside of the cable and one of the wires carry the microphone ground circuit through to the microphone junction box, where the connection plug on the other end of this "mike" cable is plugged into any one of several special receptacles attached to the wall of the sound stage. Besides the ground wire, this cable carries the two output leads of the microphone speech circuit, and the three leads of the battery circuits—one wire of which is common to both the filament and plate batteries (usually **A+** and **B-**).

It is very important that the pins on the plugs connected to the microphone and cable be kept clean and shiny by means of sandpaper at all times, so that good contact with the receptacles will be made. It is necessary to use a twelve-volt filament supply in connection with a series rheostat if the microphone cable is over 150 feet long, since the voltage drop through such a long cable is too great to permit the use of a six-volt filament battery.

The same **A** battery that furnishes filament current for the main speech amplifier may be used for the condenser microphone; but to prevent common coupling between the two amplifiers, the **B** battery supply for the microphone must always be separate from the plate-supply battery used for the main amplifier. It is general practice in the motion picture recording systems to ground the positive side of the filament supply.

### CARBON MICROPHONE TROUBLES

All microphones, even carbon microphones, are delicate pieces of apparatus, and they require careful handling if best results are desired of them. A blow that is severe enough to break one of the carbon electrodes, harm the carbon granules, or dent the diaphragm will destroy the usefulness of a carbon microphone such as used in the public address system or the intercommunicating telephones of a sound recording installation.

The current drawn by a single-button carbon transmitter of the telephone type is in the order of ten milliamperes when used with a single dry cell. Two dry cells will provide greater sensitivity with a slightly greater current flow. If this value of current is exceeded by too great an amount, tiny electric arcs will develop between the carbon granules, which will cause the granules to become red hot at the points where the arcs are formed and stick together, a condition which is known as "burning." The only remedies in the cases of trouble just described is to replace the damaged parts and refill the cell with new carbon granules. The diaphragm—particularly of a double-button microphone—

should never be touched with the fingers or any objects, as it is very delicate; and the adjustment must not be tampered with unless the operator is experienced. It is customary to ground the diaphragm of a carbon microphone. For most satisfactory operation, a carbon transmitter should be mounted in an upright position and protected from serious mechanical shocks by being flexibly suspended. The best form of suspension for the double-button carbon microphone employs eight springs symmetrically disposed to support the microphone at four points.

### CARE OF THE CARBON MICROPHONE

Carbon microphones must be kept dry at all times; and if they are unavoidably exposed to moisture during use, they should be stored in a drying cabinet for a period at least long enough to remove thoroughly all dampness. In the absence of a suitable drying cabinet, the microphone may be placed near an electric light globe or in warm sunshine.

Should the carbon button, or buttons, become packed from moisture or from lying long in one position, the granules may be loosened by holding the microphone in one hand with the diaphragm in a horizontal position and striking the hand gently with the free hand while revolving the unit slowly. Then the microphone should be turned over and the action repeated. The current in the microphone circuit must not be turned on during this operation.

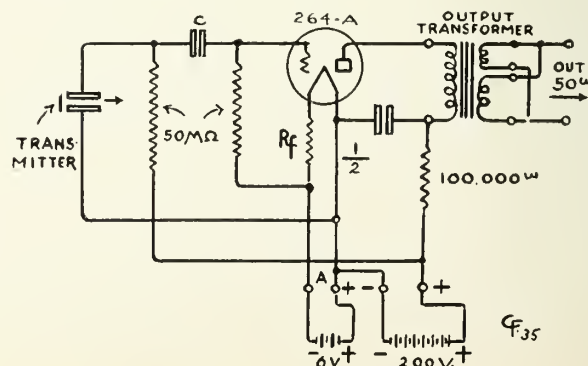
### CONDENSER MICROPHONE TROUBLES

Condenser microphones in particular are prone to many troubles if they are not used carefully. Any damage to the transmitter diaphragm will change the spacing of the condenser plates, which will at least produce distorted output if it does not make the transmitter entirely inoperative. Excessive moisture may even penetrate the impregnating compound and cause a variable leakage current to develop that, although very minute, will alter the voltage drop through the resistor in series with the condenser transmitter, producing a scratching or sputtering noise in the output of the microphone.

If the moisture in the air is too great, it may even permeate the condensed transmitter and cause it to break down under the stress of the high voltage. This is revealed when the current is on by a steady spitting noise in the transmitter that is audible to the unaided ear. The only remedy for excessive moisture in a condenser microphone is to dry it by placing it in a drying cabinet for a period long enough to remove the moisture thoroughly.

A defective vacuum tube, worn-out batteries, a microphone cable with broken-down insulation, or a bad contact at a connection plug will produce noise that may be great enough even to prevent the sound picked up by the microphone from being interpreted; but the trouble that is most often encountered is that created by a loose ground connection in some part of the microphone circuit. The open ground may be in the microphone cable or in the connection between plugs; although it is usually found at the point where the short cable attached to the condenser transmitter connects to the amplifier.

If an alternating-current "sing" is heard in the output of a microphone that is in use, it may be produced by just such a broken ground connection; but more often the sing will be an induction hum picked up by the microphone or the microphone cable from being placed too close to open a-c wiring or circuits.





The easiest means of finding out if the sing is from an adjacent circuit carrying a-c current or from an open ground in the microphone is to move the microphone and its cable to a new location at least a dozen feet from its former position. If the sing still persists, the trouble is then without doubt in the microphone ground; but if the sing stops, a-c induction pick up is probably to blame.

When the microphones are not in use, they should be hung in a special drying cabinet built like a desiccator, with several open cans of calcium chloride placed in the bottom to absorb the moisture from the air and so dry out the microphones. Fans to circulate the air within the drying cabinet are an additional help. To prevent moisture condensation when the microphones are removed, the temperature within the drying cabinet should be kept uniform and as nearly as possible the same as that in the place in which the microphones are to be used.

#### MICROPHONE OUTPUT LEVELS

The condenser microphone provides an output of about 0.35 millivolt for a sound-pressure wave of one dyne per square centimeter; as against about five millivolts given by a double-button carbon microphone for the same sound pressure. This output relationship has been slightly changed in later models, however. The greatest movement of a condenser transmitter diaphragm is approximately 0.0001 inch; while the maximum movement of the diaphragm of a carbon microphone is about ten times larger than that, or 0.001 inch. Nevertheless, what the condenser transmitter lacks in sensitiveness it gains in greater fidelity of response.

The electrical levels of the outputs of the microphones under discussion and of those which will be described in later chapters is listed below. Average speaking distance is assumed to be about twenty inches from the microphone. Zero level in decibels is 0.006 watts, or six milliwatts.

Western Electric Co., single-button carbon, type 337....	—15 db.
Western Electric Co., double-button carbon, type 387W....	—45 db.
Western Electric Co., single-stage condenser.....	—60 db.
Western Electric Co., dynamic, type 618A.....	—80 db.
Radio Corp. of Amer., velocity, type 44A.....	—80 db.
Shure, sound-cell crystal, type 77H.....	—80 db.
Astatic, crystal diaphragm, type D-104.....	—60 db.
Radio Corp. of Amer., inductor, type 50A.....	—70 db.

#### MONITORING CONTROLS

A high-grade mixing system is employed to combine in the proper proportions the outputs of several microphones. These are variable attenuation networks, either the straight T-type or a modification and simplification of the T-type. These mixers are constructed so that their input impedances match the output impedances of the microphones at all settings of the mixer; and the combined output impedances of the several mixers match at all positions the input impedance of the booster amplifier which follow them in the circuit.

A similar mixer is connected between the output of this booster amplifier and the transmission line leading down to the main recording amplifiers in the amplifier room. This last mixer is known as the main volume control, since it regulates the overall volume from the combination of microphones in use. Where several microphones are used for recording a large orchestra, the musical balance is often obtained by setting the several individual mixers, then the overall recording level is regulated by the main

## BY CHARLES FELSTEAD ASSOCIATE EDITOR



volume control. This permits regulation of the recording level without interference with the musical balance of the recording.

Ordinary potentiometers are not satisfactory to use as mixers. The input and output impedances of a potentiometer vary continuously throughout its range. This affects the sound quality, due to reflection losses and other factors induced by the unavoidable mismatching of impedance that occurs between the microphone and the potentiometer and between the potentiometer and the booster amplifier. Potentiometers may be used as volume controls only in the grid circuit of a vacuum tube, where theoretically there is no current flow.

#### ADDENDUM

It may be well to mention, although it is somewhat aside from our subject, that in public address systems, which closely parallel sound picture recording systems, feedback or acoustic coupling between the speakers and the microphone is often encountered when they are placed in close proximity. The more sensitive the microphone, the more prone it will be to this effect; and for cases where this condition cannot otherwise be avoided, it is well to use a highly-damped and rather insensitive carbon microphone for the pick-up device if the sacrifice in quality is not too high a price. The tendency to acoustic feedback can be reduced by keeping the speakers and microphone as far apart as convenient; and if the speakers or microphone are directional, it is further assistance to place them so that they are not facing each other.

The RCA ribbon, or velocity, microphone; the Western Electric electro-dynamic, dynamic, or "moving coil," microphone; and the crystal microphone all represent relatively new developments in the design of sound pick-up devices. As a result, they have not come into as wide use as the condenser microphone for sound recording; although the dynamic microphone is coming into considerable favor with sound recording engineers, particularly for the recording of music because of its accentuation of the bass register.

The next chapter of this series will revert to the subject of audio-frequency amplification, and is of a more practical nature than the previous chapters on amplification.

## SCHNEIDER LENSES

Keeping pace with the latest developments in the science of photo-optics, the firm of Jos. Schneider & Company, lens manufacturers of Germany, and represented in the United States by Burleigh Brooks, has lately introduced several new photographic objectives, namely the Aero-Xenar, the Ortho-Angulon and the Componar.

**Aero-Xenar**—As its name indicates, this is a six-element lens of the Xenar type with certain properties which render it the ideal objective for aerial photography. Spherical distortion and chromatic aberration have in this lens been brought down to an irreducible minimum. Aberrations inherent in the oblique rays have likewise been corrected, resulting in an anastigmatically flattened field over a comparatively wide angle. The aperture of the Aero-Xenar is f:4.5 and its focal lengths are 10", 11¾" and 19¾".

**Ortho-Angulon**—A wide-angle, special, objective, particularly intended for photogrammetric work, that is, land survey, the making of relief maps, etc. It combines in unusually high degree corrections for spherical aberration and astigmatism, and is the last word in an apochromatic lens, thoroughly corrected for the complete gamut of spectral colors. It defines the subject sharply

and without the slightest trace of linear distortion to the extreme edge of its angular field. Its aperture, f:4.5.

**Componar**—These f:3.5 and f:4.5 lenses are special flat field enlarging objectives for the amateur and professional photographer. They are well-corrected for spherical aberration, color, coma, and astigmatism. They come in several sizes and are adapted for use with instruments with or without enlargers.

**VARIABLE AREA RECORDERS**

PATENT NO. 1985584, OTHERS PENDING

ALSO

**35 mm to 16 mm**

**REDUCTION SOUND PRINTER**

**AND**

**SOUND EQUIPMENT**

Cable address **CRSCO**

**C. R. SKINNER MFG. Co.**

125 HYDE STREET    PHONE ORWAY 6909

**San Francisco, California    U. S. A.**

# Some Notes on the Depth of Field of Motion Picture Camera Lenses

By FRED WESTERBERG

The reader will find below two more tables on Depth of Field to go with those already published in The Cinematographer's Book of Tables. While on the subject a few observations may not be amiss.

1—The term Depth of Field which is here used should not be confused with the commonly misapplied term Depth of Focus. In practice the focusing scale is calibrated in relation to the distance between lens and subject rather than the distance between lens and image. The true depth of focus or latitude in focusing of a 50 mm. lens at stop F:2 for instance is .004 of an inch on either side of the plane of critical definition. Data of this sort is obviously of little value.

2—In accepting the value of .002 of an inch as the diameter of the largest circle of confusion which may be tolerated for good definition, consideration must be given to the conditions under which the picture will eventually be viewed. The values given in the tables may seem too optimistic when the image is observed on the ground glass through a strong magnifier. The average theatre patron, however, who sits several times the width of the screen away is unable to detect a certain degree of unsharpness due to the limited resolving power of the human eye. The reader may satisfy himself on this point by looking at the millimeter calibrations on a metric scale. Beyond a certain distance the individual calibrations are no longer discernable. In my own case this distance is about six feet which corresponds to a seat about 55 feet away from a 14-foot screen on the basis of a circle of confusion .002 of an inch in diameter on the film and .4 of an inch in diameter on the screen.

3—Many cinematographers believe, not without reason, that some lenses have greater depth than is indicated in the tables.

Since these values have been computed mathematically they only apply rigorously to highly corrected lenses. The effect of residual spherical aberrations for instance is very likely to increase the depth of field. The well-known result of such aberration is to produce an image of somewhat softer definition due to the inability of the lens to bring all of the rays from a given point in the field of view into focus in the same plane. In all probability another result is that a certain per cent of the rays originating at distances other than that focused upon will be in focus due to this same aberration.

An image that has been diffused may also create an illusion of greater depth since the plane of critical definition is less pronounced and therefore less likely to serve as a basis of comparison between that which is sharp and that which is not sharp.

4—Figures on depth of field can only be relied upon when a lens is accurately focused. An inaccurate focusing scale often leads to an erroneous appraisal of depth of field capacity. For instance if a lens apparently exhibits an unusual amount of depth in the background this will usually be found to be due to back focusing.

5—Use of depth of field tables is often helpful when making test exposures to check the focusing scale. This is especially true when checking the smaller stops where the latitude in focusing is quite great and the focusing scale may be in error due to a change in focal length caused by residual spherical aberration. When a lens is correctly focused at a given distance the image should appear equally out of focus at the relative distance in front of and behind the point of focus indicated in the tables.

DEPTH OF FIELD  
60mm. LENS

Distance In Feet To Point of Focus	DISTANCES IN FEET INDICATING LIMITS OF GOOD DEFINITION						
	F-1	F-1.4	F-2	F-2.8	F-4	F-5.6	F-8
3	2.96 to 3.04	2.94 to 3.05	2.92 to 3.08	2.89 to 3.11	2.84 to 3.16	2.77 to 3.23	2.67 to 3.33
4	3.93 to 4.07	3.91 to 4.10	3.87 to 4.14	3.82 to 4.20	3.75 to 4.30	3.65 to 4.40	3.5 to 4.6
5	4.90 to 5.11	4.86 to 5.15	4.8 to 5.2	4.7 to 5.3	4.6 to 5.5	4.5 to 5.7	4.3 to 6.0
6	5.85 to 6.15	5.8 to 6.2	5.7 to 6.3	5.6 to 6.5	5.5 to 6.7	5.3 to 7.0	4.0 to 7.5
7	6.8 to 7.21	6.7 to 7.3	6.6 to 7.4	6.5 to 7.6	6.3 to 7.9	6.0 to 8.4	5.7 to 9.17
8	7.7 to 8.28	7.6 to 8.4	7.5 to 8.6	7.3 to 8.8	7.0 to 9.3	6.1 to 9.9	6.3 to 11.0
9	8.7 to 9.36	8.6 to 9.5	8.4 to 9.7	8.1 to 10.1	7.8 to 10.6	7.4 to 12.5	7.0 to 14.0
10	9.6 to 10.4	9.4 to 10.6	9.2 to 10.9	8.9 to 11.4	8.5 to 12.0	8.1 to 13.1	7.5 to 15.2
11	10.5 to 11.5	10.3 to 11.8	10.1 to 12.1	9.7 to 12.7	9.3 to 14.5	8.7 to 15.0	8.0 to 17.6
12	11.4 to 12.6	11.2 to 12.9	10.9 to 13.4	10.5 to 14.0	10.4 to 15.1	9.3 to 16.9	8.5 to 20.3
13	12.3 to 13.8	12.0 to 14.1	11.7 to 14.6	11.2 to 15.4	10.7 to 16.7	9.9 to 19.0	9.0 to 23.4
14	13.2 to 14.9	12.9 to 15.3	12.5 to 15.9	12.0 to 16.8	11.3 to 18.4	10.5 to 21.2	9.5 to 26.8
15	14.1 to 16.0	13.8 to 16.5	13.3 to 17.2	12.7 to 18.3	11.9 to 20.2	11.0 to 23.5	10.0 to 30.6
16	15.0 to 17.2	14.6 to 17.7	14.1 to 18.5	13.5 to 19.8	12.6 to 22	11.6 to 26	10.4 to 35
17	15.8 to 18.3	15.3 to 19.0	14.7 to 20.0	14.0 to 21.6	13.0 to 24	11.8 to 29	10.7 to 42
18	16.7 to 19.5	16.3 to 20.2	15.6 to 21.3	14.8 to 23	13.8 to 26	12.5 to 32	11.2 to 47
19	17.6 to 20.7	17.0 to 21.5	16.4 to 22.6	15.5 to 25	14.4 to 28	13.0 to 35	11.6 to 53
20	18.4 to 21.9	18 to 23	17 to 24	16 to 27	15 to 30	14 to 39	13 to 64
25	23 to 28	22 to 30	21 to 32	19 to 36	18 to 44	16 to 63	14 to 170
30	27 to 34	26 to 37	25 to 40	22 to 47	20 to 62	18 to 110	15 to INF.
40	34 to 48	32 to 53	30 to 61	27 to 78	24 to 128	20 to INF.	17 to INF.
50	41 to 63	38 to 72	35 to 87	31 to 127	27 to INF.	23 to INF.	18 to INF.
75	57 to 111	52 to 138	46 to 211	39 to INF.	33 to INF.	27 to INF.	21 to INF.
100	70 to 175	62 to 256	54 to INF.	45 to INF.	37 to INF.	29 to INF.	22 to INF.

Based on an allowable circle of confusion .002 of an inch in diameter.

DEPTH OF FIELD  
32mm. LENS

Distance In Feet To Point of Focus	DISTANCES IN FEET INDICATING LIMITS OF GOOD DEFINITION						
	F-1	F-1.4	F-2	F-2.8	F-4	F-5.6	F-8
1	.99 to 1.01	.98 to 1.02	.97 to 1.03	.96 to 1.04	.95 to 1.06	.93 to 1.08	.90 to 1.12
2	1.94 to 2.06	1.92 to 2.08	1.89 to 2.12	1.85 to 2.18	1.80 to 2.3	1.7 to 2.4	1.6 to 2.6
3	2.87 to 3.14	2.82 to 3.2	2.76 to 3.3	2.67 to 3.4	2.55 to 3.6	2.4 to 4.0	2.2 to 4.6
4	3.8 to 4.2	3.7 to 4.4	3.6 to 4.5	3.4 to 4.8	3.2 to 5.2	3.0 to 6.0	2.7 to 7.6
5	4.6 to 5.4	4.4 to 5.6	4.3 to 5.9	4.1 to 6.3	3.9 to 7.1	3.5 to 8.6	3.1 to 12
6	5.5 to 6.6	5.3 to 6.9	5.1 to 7.3	4.8 to 8.0	4.4 to 9.3	4.0 to 12	3.5 to 21
7	6.3 to 7.8	6.1 to 8.2	5.8 to 8.9	5.4 to 9.9	4.9 to 12.1	4.4 to 17	3.8 to 45
8	7.1 to 9.1	6.8 to 9.6	6.4 to 10.5	6.0 to 12.1	5.4 to 15.3	4.8 to 25	4.2 to 108
9	7.9 to 10.4	7.6 to 11.1	7.1 to 12.3	6.5 to 14.5	5.9 to 19.5	5.1 to 38	4.3 to INF.
10	8.7 to 11.7	8.2 to 12.7	7.7 to 14.3	7.0 to 17.5	6.3 to 25	5.4 to 72	4.5 to INF.
11	9.5 to 13.2	8.9 to 14.3	8.3 to 16.4	7.5 to 21	6.7 to 32	5.7 to INF.	4.7 to INF.
12	10.2 to 14.6	9.6 to 16	8.8 to 19	8.0 to 25	7.0 to 43	6.0 to INF.	4.9 to INF.
13	10.9 to 16.1	10.2 to 18	9.3 to 21	8.4 to 29	7.3 to 59	6.2 to INF.	5.1 to INF.
14	11.6 to 17.7	10.8 to 20	9.9 to 24	8.8 to 35	7.6 to 88	6.4 to INF.	5.2 to INF.
15	12.3 to 19.3	11.4 to 22	10.3 to 27	9.2 to 41	7.8 to 150	6.6 to INF.	5.3 to INF.
16	12.9 to 21.1	12.0 to 24	10.8 to 31	9.6 to 50	8.1 to INF.	6.8 to INF.	5.4 to INF.
17	13.6 to 22.8	12.5 to 27	11.2 to 35	9.9 to 62	8.4 to INF.	7.0 to INF.	5.5 to INF.
18	14.2 to 24.7	13.0 to 29	11.7 to 39	10.2 to 76	8.5 to INF.	7.2 to INF.	5.6 to INF.
19	14.8 to 27	13.4 to 33	12.1 to 44	10.5 to 100	8.7 to INF.	7.3 to INF.	5.7 to INF.
20	15.3 to 29	14.0 to 35	12.3 to 53	10.7 to 138	8.9 to INF.	7.4 to INF.	5.8 to INF.
25	18.2 to 40	16.3 to 54	14.3 to 100	12.0 to INF.	10.4 to INF.	8.0 to INF.	6.2 to INF.
30	20.7 to 55	18.4 to 83	15.8 to 310	13.0 to INF.	10.7 to INF.	8.5 to INF.	6.6 to INF.
35	23.0 to 73	20.0 to 140	17.0 to INF.	14.0 to INF.	11.0 to INF.	9.0 to INF.	7.0 to INF.

Based on an allowable circle of confusion .002 of an inch in diameter.



# Peterson's Telescopic Camerascope

By ED. M. WITT



THE versatile Camerascope is the most recent advance in the camera field. This instrument is equipped with highly corrected anastigmat lenses, a twenty-five inch telescope; has a high power eye-piece for direct observation, a focusing screen, and mountings for either still or moving picture cameras. There is also a place for mounting an exposure meter. Paralleling the barrel of the telescope is a high power finder matched for field with the telescope.

Any of these appliances are available in an instant as they are hinged to the barrel of the telescope. One may observe the object through the telescope with the eye-piece, then swing the eye-piece to the side and swing the camera into place almost instantly.

The high-power highly corrected lens allows, in bright light, good exposures at one two-hundredth of a second, making it pos-

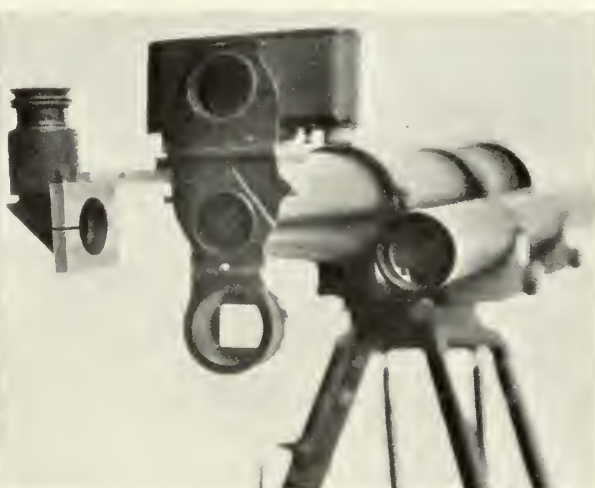
be impossible for any ordinary camera equipped with other telephoto lenses.

For naturalists, it would prove an answer to a long-felt want, giving them an opportunity to photograph animals at so great a distance that the photographer could not be detected.

For police work it is invaluable for taking both interior and exterior close-ups of crimes from stake-out positions. Persons and automobiles are easily identified and the pictures will furnish irrefutable evidence against the criminals.

For the traveler, from the ship's rails, pictures of coast villages and marine scenes can be taken by either or both still and movie cameras. The same scope is available on land from mountain top and skyscraper. Instructive as well as interesting and beautiful shots can be made.

For aviators, shots can be taken at two-hundredth of a second and the lightness and capacity for great detail makes this a very valuable instrument for aero work, both amateur and



sible to stop almost any action. The ability of the scope may be somewhat comprehended when a building fifteen hundred feet distant is photographed and fills the entire screen of a Leica camera. Taking an office building over a block away, it was surprising to see the scope had brought the object so close that only two windows were visible, one at either end of the screen.

The apertures range from f:22 to f:99. For solar or astronomical observation, any power eye-piece may be substituted.

This instrument allows the photographing of objects that would

professional. For the candid cameraman, his stuff could be done without the danger often involved.

The illustrations will show how compact and portable the camerascope is. The instrument is covered with dull leather to match the camera used—Leica, Contax, Eymo, Cinekodak or any miniature or hand movie camera. There is a very strong and substantial mounting making vibration impossible.

The Camerascope is credited to the inventive powers of George Peterson of Peterson's Camera Exchange, O. T. Johnson Building, 356 South Broadway, Los Angeles, Calif.

## SUPREME

On the occasion of the first meeting of the S. M. P. E. in Hollywood Dr. Kenneth Mees, Director of the Eastman Research Laboratory, Rochester, said, speaking to the cameramen at the Hollywood Chamber of Commerce assembled:

"You gentlemen are known throughout the world, without any dispute or question, as the greatest exponents of the art of photography—there is no question about it—the cameramen of Hollywood are the greatest known in the art of cinematography—in that field you are supreme."

Hollywood  
MOTION PICTURE EQUIPMENT CO. LTD.  
645 NORTH MARTEL AVE. CABLE ADDRESS ARTREEVES  
HOLLYWOOD, CALIFORNIA, U.S.A.

# CHOOSING YOUR FILMS

By EARL THEISEN, *Associate Editor*

**D**OES anyone ever walk into a book store and say: "I want a book, wrap one up, please?"

No, a specific book is requested and, if the first book store does not have the desired one, other stores are hunted out. If the book can't be found, the purchaser usually waits until it can be ordered. It is absurd to think that anyone would buy a book he did not want, just because it had red and green covers; yet that is what is done at the movie box-office.

Without previous investigation millions of persons every week of the year walk up to some colorful box-office to spend quarters, half-dollars, and dollars for films that they know nothing about. Then after seeing the picture they cry to the four winds, "Trivial!" "Gaudy!" "Unfit!" forgetting that a movie which will entertain one person is entirely unfit and trite to another.

Selective methods must be used just as they are used in pursuing literary entertainment. Before reading a book the advice of a librarian, or someone who has read the book, a review, or critical judgment is sought. The same may apply to film entertainment. Very discerning film reviews may be had from 401 libraries in the United States, a service which began with the Los Angeles Public Library in September, 1934, which was shortly thereafter adopted as a regular function by 386 libraries. The service was sponsored by the Los Angeles Co-ordinating Council, who are interested in child welfare.

Can we depend on the reviews? As in literature, it is true the tastes and opinions of the reviewers differ, but a number of publications have reviews with dependable statements regarding the contents of the films.

Perhaps the most satisfactory method of judging film merits, according to the individual's tastes, is by personal observation of the production technique of the various studios and the output of the authors and actors. Certain producers create personable, pleasing screen entertainment, while others hamstring the artistic impulses of his helpers; some studios manufacture the films under a well-outlined formula by conveyor belt methods, while others do not.

Many of the stars appear in stories written along certain lines. Mae West appears in a brusque red-blooded film, John Boles in musicals, Shirley Temple in children's films. Director Frank Capra supervises pictures with a dramatic construction like, "It Happened One Night," in which there was comparative little use of light and shadow and a non-suggestive interpretation of the love element, while Josef von Sternberg uses an entirely different technique in which much use is made of light, shadow and camera angles and an added intangible suggestiveness to the love element, while Josef von Sternberg uses an entirely different another will not. Casual observation makes the technique or "screen style" of the various directors and stars obvious, and the thoughtful person has less chance of finding himself paying for an unsuitable picture or contributing to its manufacture if he observes and chooses his film fare.

In reading literature and appreciating it much time has been spent in developing a taste for better writing. We know what is good and why it is good. Those who like dime fiction, read it; those who do not let it alone. Children are protected by parental guidance until they have been taught to appreciate and form an opinion of what is good for them. I wonder why the same practice could not apply to the movie.

Educators are slowly waking up to the fact that motion pictures have a profound influence on the youthful mind. As indicated by researches of the Payne Fund and the National Council of Teachers of English, children are picture-minded and absorb and remember what they see on the screen.

"Undoubtedly, along with the radio and the press the motion pictures are the mediums that mold public opinion, form and interpret national standards," stated Mrs. Thomas G. Winters.

Statistics published by the Department of Commerce show that the average attendance at motion pictures in the United States is around 70,000,000 each week, of which 10.5 per cent are children from five to fifteen years of age and 30.9 per cent are from fifteen to twenty-four. Investigations have proved that the average attendance by children of school age is a little more than once a week. Do children read an average of a book a week? And when they read the book, do they absorb it or are they influenced by it as much as by the motion picture?

Every school has courses in literature appreciation. The work of various authors, the literature of different countries, plot technique and literary style, poetry, prose are studied and are a part of every school curriculum, while the motion picture even as influential as it is admitted to be, is studied in only about 1,600 of the progressive schools in the United States. Imagine that.

Two reasons are generally advanced by the mossback educators for not introducing motion picture appreciation courses in the schools. They believe it would jazz up education and teach the kids to get more kick out of motion pictures. "Teaching motion picture appreciation," one educator said, "would be perpetrating the biggest advertising hoax ever advanced." He believed that recommending certain films or studying film styles and cinematic drama would be direct advertising for good films.

That classroom instruction in good film points would be no more advertising for the movie studios that it would be, or is, for the publisher of good books, is obvious. The motion picture producers are not unlike the publishers of books; certain of them publish good books, while others do not. Besides, if a film is good enough for children it should be advertised.

The statistics already mentioned and approved by a number of investigating groups indicate that children are going to the film theaters in droves of several millions each week. After the movie they return home to play bandit, cowboy, and imitate the screen players. The statistics further indicate that children, unless trained and their critical faculty developed, largely see the wrong things in films. It remains for the schools to add courses which help the student to evaluate what he sees in terms of established criteria just as is being done in modern drama, poetry, and literature: At that time the films will be useful.

Then there is this to be said: A few years ago before the advent of the movies, the children hid in the woodshed or the hayloft and read Nick Carter novels; now it is true they do the same thing in a different manner in the movie theater. Children are naturally inclined to robust blood and thunder appetites in both drama and literature. They have few moral codes until such codes have been literally pounded into them. Like the adults who sit and vicariously thrill to travel by reading time tables, it is perhaps better that our children sit in the movie and thrill to cowboys, and other activities, rather than go out in the streets and actually hunt such activities which they certainly do when not sitting in the film houses.

Eight states, including Ohio, Iowa, Connecticut, New Jersey, Pennsylvania, New York and California, have already adopted motion picture understanding courses in which instruction is given in classes varying from kindergarten through college.

The clubs and magazines are an important factor in circulating information for adults. Daily previews of the new films are held at the Hollywood Roosevelt Hotel, at which time five representatives of each of the various clubs and national groups attend for the purpose of getting advance information for the club mem-



**MAX FACTOR'S**  
NEW  
*Satin Smooth*  
**LIQUID FOUNDATION**  
A REVELATION IN FACIAL MAKE-UP



bers. The information and opinions are then published and circulated to the club members. The reviews are also available to the general public and may be had for the price of the postage.

Daughters of the American Revolution mail weekly reviews to anyone sending twenty-five self addressed postcards to Mrs. Mildred Russel, c/o Hollywood Citizen-News, Hollywood, Calif.

Women's University Club publish very complete reviews twice monthly, the subscription is \$1.00 a year; 943 South Hoover, Los Angeles, California.

California Congress of Parent and Teachers reports are published in the "California Parent Teacher Magazine," subscription fifty cents a year, Room 490, Chamber of Commerce Building, Los Angeles, California.

These reports along with reports of other clubs and groups such as the National Board of Review, International Federation of Catholic Alumnae, East Coast Preview Committee, National Council of Jewish Women, General Federation of Women's Clubs, and others are also published by the Public Relations Department, Miss Ryllis Hemington, director, Fox West Coast Theatres Corporation, 1837 South Vermont Avenue, Los Angeles, California, and also by the Motion Picture Producers Association, 5504 Hollywood Boulevard, Hollywood, California.

The effort to give information about the better pictures is a sincere one. The reviewing committee do not even get carfare. The Hays office aids in distributing the reports of the groups, whether they recommend the pictures of the Motion Picture Producers Association members or not. For example in the current "Joint Estimates" of seven of the above mentioned national groups which are published by the Motion Picture Producers Association are the phrases describing the films of the major producers. Regarding the Fox picture, "Dressed to Thrill," is the phrase "impossible situations." Describing the Columbia picture, "After the Dance," is the statement, "The story is a trite one which poor direction makes impossible for an otherwise capable cast." Such reviews are printed by the thousands and sent out all over the United States by the Motion Picture Producers regarding pictures made by their own members. Whether a picture is good or bad, they say so.

The radio has also taken up the move for educating and helping the public to select film entertainment by broadcasting film reviews and commentaries. Over 200 stations, it is estimated, broadcast motion picture reviews. The radio stations donate the use of the station over which is broadcast the reviews submitted by a social minded group or a consensus of opinions of the above mentioned clubs. Twenty-six of the larger stations broadcast the reviews of the International Federation of Catholic Alumnae.

"The volunteer efforts do much good and are far better than straight jacket methods and legislation in getting wholesome, satisfactory film entertainment in the theaters," states one critical observer.

The studios are in the business of making pictures and, due to the high manufacturing costs of pictures, such stories and films that command a commercial return must be made. The solution lies in first educating the children in the schools and then second publishing honest information regarding the characteristics of the pictures. Better pictures is a question of a hand-in-hand development of the taste for better pictures and the making of pictures to satisfy that taste. Such a thing can not be done over night; the move is already as old as the motion picture industry itself.

Such recent pictures as "The Barretts of Wimpole Street," "David Copperfield," "House of Rothschild," "Lives of a Bengal Lancer," "The Count of Monte Cristo," "Little Women," and other pictures from the literary classics indicate the general trend. Ten years ago the public would have been entirely uninterested in such film versions; whereas now such pictures at least pay the expense of their manufacture.

Just recently film versions of the operas and good music as in the Grace Moore and Tullio Carminati "One Night of Love," produced by Columbia, which introduced for the first time operatic arias in films, indicate a taste for better musicals.

Such trends reflect higher standards of public taste. The making of artistic, ethical, and socially valuable pictures indicate that the "age" of the theatre audience is raising.

Censorship will not do it. It is a lamentable fact that one of the leading occupations of the United States is the grand old sport of minding the other fellow's business. This, reduced to its essentials, is the basis of censorship. In censorship and its functionings on the whole, there is the determination of various individuals to make the likes of others conform with their own rather than a general education of the public to appreciate better films. There are over two hundred and fifty minor boards. Each of these boards try to edit the films according to a set of regulations promulgated in their community. Some of the demands advanced by these groups are nothing more than buffoonery at public intelligence and not the general regulation of immorality,



Photo by Lippman, Columbia Studios.

Josef von Sternberg directs Peter Lorre and Edward Arnold in a scene from "Crime and Punishment", for Columbia Studios. Included in the outstanding supporting cast are Marian Marsh, Tala Birell, Mrs. Patrick Campbell, Elizabeth Risdon and Douglass Dumbrille.

#### FROM A LETTER BY WILFORD DEMING, JR.

"Due to our leaving rather hurriedly . . . we decided on Tuesday and sailed on the following Saturday . . . It was impossible then to give you full details of our projected trip to India. As you perhaps know, I came here in 1930 and supervised the production of India's first talking picture. Again in 1931 I returned to India and in Calcutta built a complete modern production plant and supervised four more productions. The present trip was at the request of Saroj Movietone, Bombay, one of India's leading producers, and, under my contract, I am producing **six pictures** yearly for a period of years, under contract conditions so favorable that comparison with production agreements in Hollywood is impossible.

"Clinton Von Herberger, whom you saw the day we left Hollywood, is assisting me in charge of special effects and technical production details, and I expect to give him his own unit in the near future. Our association with Saroj, under the ownership of a most progressive owner, is most fortunate in every respect and we have great hopes for our productions which shall be patterned after Hollywood productions, contrasting greatly with the slow-moving Indian pictures.

"At some near future date I shall detail some interesting facts relative to picture production in India. **This is surely the grandest place in the world for accomplishment.**

"We are enjoying and waiting each month for our copy of your excellent magazine.

"Sincerely,

"WILFORD DEMING, JR."

criminality, or obscenity, which elements were implied in certain pictures a few years ago. It is true the function of the major state boards is to protect the citizens and do a certain amount of good, although the minor boards are concerned with such details as a man kissing or not kissing his wife, whether a policeman should or should not show a gun on the screen; one community board will permit one thing, while a few miles away across the townsite another board will taboo it. If the opinions of the two boards ever coincided, both the boards should be coated with shellac and preserved as one of the world's greatest rarities.

Obviously, the question of good film fare lies in raising the standards of appreciation and in giving the public information regarding the pictures.

With the information on film entertainment now made available in published reviews in Time, Parent's Magazine, Liberty, the press, the radio, and thousands of other sources, there is little excuse for a person getting an unsuitable picture thrown into his lap.

Scheibe's FILTERS

In World-Wide Use

produce Moonlight and Night Effects in Daytime - Fog Scenes - Diffused Focus, and many other effects With any Camera - In any Climate

**George H. Scheibe**  
ORIGINATOR OF EFFECT FILTERS  
1927 WEST 78TH ST. LOS ANGELES, CAL.

SINCE 1916

HOLLYWOOD STUDIOS USE THEM IN EVERY PRODUCTION



# Why Cameramen Revel in Their Work

By HERBERT ALLER

**B**E IT in the country club, on the golf course or by the fireside, it goes without saying that the conversation finally drifts into motion pictures. Cinema-goers of today are to be found in all parts of the world. The only difference between the cinema-goers of yesterday and those of today is that under present conditions they have changed their position and now rightfully have burdened themselves with the duty of expressing their appreciation or dissatisfaction with any one or group of pictures. More so than ever is this camera-conscious public of today the court of last resort to render a decision as to the photographic quality of a motion picture. Besides, they have so interested themselves in angles as to offer comments on a shot, be it of a particular picture or of a news event appearing in one of the newsreels.

With this as a premise, the cameraman of today is not just the artist technician; he is a showman as well. He must now think in terms of entertainment value. Hal Mohr, that well-known cameraman, now filming "Captain Blood" for Warner Brothers, has concentrated much thought and effort on the miniature shots of that picture. Mohr is convinced that the public is reaching with outstretched hands for a spectacle of outdoor drama, far different from and more fascinating than the conventional interior shot which, no matter how beautifully photographed, cannot positively enthrall the fancy of those critical cinemaddicts. Entrusted with this gigantic task, Mohr goes about his work cheerfully. To serve the millions of cinema-goers is not all. He has been asked to use his years of study and experience to advance the photographic profession. To venture into the unexplored of one's life work personifies the most satisfying state any master technician can ever reach. Surely there can be no question that Mohr enjoys cinematography.

In photographing "Gay Divorcee" and "Top Hat," two of the Fred Astaire-Ginger Rogers sensations produced by R-K-O., Dave Abel, an ace cameraman, strove unflinchingly to transform the screen into a massive stage. Abel knew that heretofore the screen never had been used to portray a scene where dancing groups appeared in the distance. Thus it was his task to devise some means by which he could bring before the cinemaddicts this tremendous stage without overcrowding or eliminating parts of it. Working like a composer does when commissioned to write a new composition, Abel delegated to himself to arrange this impressive exhibition. As a true showman, he delved into an unknown realm of camera angles, lighting effects and settings, finally emerging with the means of producing on the screen that which was known only to the patrons of musical comedy. In other words, Abel brought musical comedy to the screen. Performing to please millions gives Cameraman Abel indescribable pleasure.

At Warner Brothers, ace cameraman Sol Polito, who might be considered the pioneer cameraman of musical pictures, studied the preparation of "Forty-second Street" and "Gold Diggers of 1933," two tremendous Warner Brothers productions, with much deliberation. Convinced that dancing choruses could be photographed without confusion to the audience, he proceeded to shoot the pictures mentioned. After the public received these pictures with awe and enthusiasm, Polito calmly smiled—his experiment had proved itself a huge success. He was happy to know that his time and efforts to bring a new form of entertainment to the screen had not been in vain.

The transformation of color to the screen was brought about by the everlasting energy of that remarkable cinematographer, Ray Rennahan, now known throughout the world for his remarkable photographic attainments as exemplified in "Becky Sharp," the

first feature length color picture. Rennahan has been aided by three other ace cameramen, William Skall, Howard Greene and Will Cline, in continuing Technicolor pictures. These men are grouped together in a common cause. They go about their work determined to prove to the cinemaddicts of the world that color is the last and final word in photography. Cameramen engaged in such intriguing work realize that they must combine science and cinematography. Pleased with their surroundings, the policies of their organization and the captivating work they are performing, these men have oftentimes expressed their utmost contentment as well as enjoyment in shooting in Technicolor for Technicolor.

When Eddie Kull returned from Guatemala with the Ashton Dearholt Expedition after having filmed the "New Adventures of Tarzan" for the Edgar Rice Burroughs enterprises, Eddie was asked, "How did you enjoy the trip?" In that modest manner that is so typical of Eddie when questioned about his work, he replied: "The trip was splendid, but that is hardly of any importance. We went to Guatemala to bring back authentic scenes of jungle life, shots of hundreds of natives and their primitive ways of living and the last word in realism. In fact, I doubt whether another cameraman will ever get the opportunity to let his lens pry into the hidden mysteries of this Central American country. I hope the movie audience throughout the world will enjoy the scenery and thrills made possible by this trip with as much gusto and enthusiasm as I enjoyed supervising the photography."

This explains why Eddie enjoys being a cameraman.

Argument is not necessary to support the statement that some endeavors of life are mere jobs, yet I feel that the circumstances appertaining to the cameraman manifest every reason why most of them, if not all, enjoy their work to the nth degree.

Among the still cameramen there can be found any number of photographic enthusiasts. In addition to their regular work, men such as Kenneth Alexander, of Goldwyn Pictures; Irving Lippmann, of Columbia Pictures; Bill Thomas, of Reliance; Oliver Sigurdson, of Radio Pictures; and freelancers like Arthur Marion, Harry Osborne, Fred Archer, Shirley Vance Martin, and many others find time to experiment, striving continually to prove to the onlookers of the cinema world that still pictures have a definite and important part in enhancing the value of any particular production.

Considering the personal element, these men are also satisfying an innate desire to express through the medium of the celluloid their conception of natural beauty, as well as the individual characteristics of the different stars that pose for their cameras.

Every time you look at a newsreel cameraman in action you are impressed with his sincere and determined demeanor. His mind is set on getting the best angle of the story in speedy fashion. Possessed of a talent as a newspaper man and the ability of a cameraman, the newsreeler applies himself to producing for the screen one or two particular shots that will tell a long story in a few minutes of screening. In due time his work becomes a study; successfully photographing news for the masses is, besides being a stupendous job, also a heap of fun.

Cameramen of today accept their work as a second nature. Placed in a position where they are cognizant of their relative importance in the production of motion pictures, cameramen deviate from the course of glamour and concern themselves with their work. This is so because they enjoy it.

## We'll Pay Cash!

WE WANT IMMEDIATELY

Mitchell  
Akeley

Eyemo  
Bell & Howell

De Brie  
Contax

Leica, and Similar Used Cameras

— Also —

LENSES, MOTORS, PARTS, AND CAMERA  
ACCESSORIES


What Have You To Offer?

Write or Wire Today

MOTION PICTURE CAMERA SUPPLY, INC.


723 7th Avenue

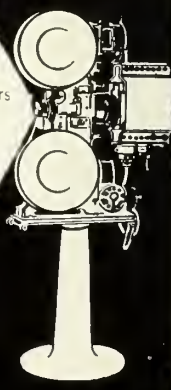
New York City



**EVERYTHING  
PHOTOGRAPHIC**  
for Professional and Amateur

New and used. Bought, sold  
rented and repaired. Designers  
and manufacturers of the  
H.C.E. Combination Lens  
Shade and Filter Holder  
for any size lens.  
Send for bargain catalogue  
**Hollywood Camera  
Exchange**  
1600 Cahuenga Blvd.  
Hollywood  
Tel.: HO-3651  
Cable:  
**HOCAMEX**







# ARC LIGHTS FOR COLOR

By PETER MOLE

*Mole-Richardson, Inc.*



THE question is often asked: "Why are arc lights so universally used for natural-color pictures? Is the arc the only illuminant that can be used for lighting color films?"

Both questions may be answered by the statement that while the arc is by no means the only light-source that can be employed in natural-color cinematography, it is as yet the most practical from a production viewpoint. In any type of photography, the color of the light used in making the exposure is important. Even with the super-panchromatic emulsions used in today's black-and-white filming, there is a noticeable change in quality between scenes filmed while the sun is high and the same scenes filmed late in the afternoon, when the light has grown more yellow. If our picture is in color, this factor is even more pronounced, for the film will not only reproduce any change in the color of the light but often exaggerate it.

Knowing this to be true, we can easily realize that if our interior scenes are to match our exterior sequences, the color of the light used to illuminate the interior sets must closely approximate the color of natural sunlight. This holds true no matter what process of color camerawork may be involved. The light must either be inherently similar to sunlight, or made so by filters on the camera or the lights themselves. Extensive research is now being undertaken to adapt incandescent lights to use with color processes.

Analyzing the spectral characteristics of the various light-sources adapted to motion picture photography, we find that the color-distribution of the carbon arc is almost identical with that of natural sunlight. Expressing it graphically, we find that the curve for a typical arc parallels the sunlight curve almost mathematically, save for somewhat lesser intensity, and a marked peak between the ultra-violet and violet wave-bands (4,000 Angstrom units). Reduced to practical terms, this similarity means that we can use the same cameras, unchanged, for both interior and exterior scenes. One camera, without compensating filters or any special adjustment, will carry a normal production through, handling exteriors and interiors as readily as would a standard black-and-white equipment.

At the same time, it is evident that the filters, beam-splitting devices, and so on, necessary in natural-color cinematography must result in a considerable increase in exposure—or, more properly, in the amount of light needed for a given scene. Since today's trend is toward fewer lamps, and simpler lightings for any given scene, the lamps used must be of high unit efficiency. The excellence of the arc in this respect is too well known to require comment.

Therefore, when Technicolor prepared to introduce the three-color version of their process commercially, their engineers specified arc lighting because of these proven qualities of ideal color and high unit efficiency. Since most of the arc equipment available at that time dated at least from pre-talkie days, it became necessary to evolve new lamps, embodying modern design, and built for silence and, if possible, even higher illuminating efficiency.

While the engineers of the National Carbon Company developed new and improved carbons for these purposes, the Mole-Richardson organization set about developing a line of really modern arc lamps. The first to be developed was the twin-arc broadside, which is, of course, the fundamental arc unit. In the older broadsides, both arcs were fed by a single mechanism, which naturally resulted in more or less uneven light, and in considerable noise. Therefore, in the new unit, we have provided a separate feed-mechanism for each arc; this enables the carbons to be fed at the right speed for each of the two individual arcs and gives us light that is perfectly uniform in both color and intensity. At the same time, improvements in the design of the feeding mechanisms have brought really silent operation. By designing the reflecting shell of the lamp more scientifically, we have been able to utilize more of the light produced, and to distribute it more evenly over the 60° angle required for general lighting purposes. Compared to the old type "broad," we find that the new unit, burning the newly developed 8mm. studio carbons, gives 250% more light than the units previously used, with silence, evenness and constancy never before achieved.

For overhead lighting, the same basic unit was easily adapted into a "scoop" by changing the reflector and mounting.

For spotlighting and modeling purposes, the 80-ampere rotary-

carbon spotlight is the basic unit, with the 24 and 36 inch sun arcs to provide the highest intensities. Up to a point, the existing units of this type were found to be usable with modern color processes, once their feeding mechanisms were silenced and choke-coils fitted. But as these designs, too, were several years old, it was decided to evolve more modern units. The first of these—a completely new high intensity spotlight known as the "Hi-Spot"—is now in use. It represents a considerable departure from traditional practice, as it (like the incandescent "Solarspot") uses a new optical system, based on the Fresnel type of lens. This naturally gives it greatly improved distribution of light within the beam and, since more of the light radiated is utilized, greater efficiency. The feeding mechanism has been modernized to give better burning qualities, resulting in more constant intensity and color, as well as quieter operation. To sum it up, the Technicolor camera experts have rated the new "Hi-Spot" as being fully equal in light intensity to the standard 24-inch sun arc, and in all cases more adaptable to modern needs.

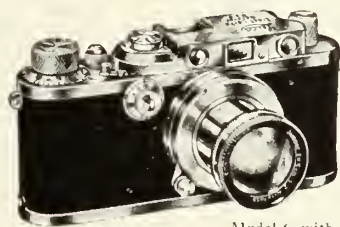
The old problem of "kleig eye" has been completely solved. In the old days, it was often the fashion to guess at things, rather than to ascertain the cause with scientific accuracy. In the case of "kleig eye," medical science has now learned that the cause is found in exposure to certain ultra-violet rays. These rays are present in the radiation of arcs, but can very easily be filtered out by merely placing a sheet of common lead glass before each arc. This is quite practical, for the glass does not eliminate any of the important visible rays, nor change the quality of the light in any way. It is therefore a hard-and-fast rule on Technicolor sets that no arc is ever to be used without its clear glass hanger—and not a single case of "kleig eye" has occurred on a modern Technicolor production.

## CANDID NEWS

NEW

*Leica*

"1000"  
MODEL G



Model G with f:2 Summar Lens

## ALL IN ONE

1. The greatest range of shutter speeds of any miniature camera—1/1000 of a second to one full second.
2. Shutter speeds continuous from one second to 1/20 of a second. No other camera has this speed flexibility.
3. Virtually silent focal plane shutter, ideal for press or amateur camera shots.
4. Built-in automatic range finder for instantaneous and accurate focusing.
5. Thirteen interchangeable lenses—more than any other miniature camera.
6. Color snapshots with Leica Dufaycolor film.
7. Styled for the modern in new chrome finish, to fit the hand and pocket.

Write for illustrated booklets. Don't miss your copy of "Leica Manual", a new 500-page book on all phases of Leica photography, \$4.00 at all Leica dealers. PRICES START AT \$99 U. S. PAT. NO. 1,960,044

**E. LEITZ, INC.** • DEPT. 69 • 60 E. 10TH ST. NEW YORK  
BRANCHES IN CHICAGO • WASHINGTON • LOS ANGELES • SAN FRANCISCO

# INTERNATIONAL

## CLASSIFIED ADVERTISING

Brings results—Rates 45 cents per line—minimum charge one dollar per insertion. For Rent—For Sale—Wanted—For Exchange, etc.

### FOR SALE OR RENT—CAMERAS

**FOR SALE OR RENT**—Mitchell and Bell & Howell silenced cameras, follow focus. Pan lenses, free head, corrected new aperture. Akeley, De Brie, Pathe, Universal, Prevost, Willart, De Vry, Eyemo, Sept, Leica. Motors, printers lighting equipment. Also every variety of 16 mm. and still cameras and projectors. B & H Cameras with old type shuttles silenced \$150. Everything photographic bought, sold, rented and repaired. Send for our bargain catalogue. Hollywood Camera Exchange, 1600 Cahuenga Blvd. Phone HO. 3651. Cable, Hocamex.

### FOR SALE—CAMERAS AND EQUIPMENT

**REAL BARGAINS** in 16 and 35 mm. movie equipment and still cameras. Newest types cameras and projectors in all popular makes. Save money on film, lights, lenses and all essential accessories. Our 36 years of experience stands back of every sale. Before you buy, send for our new bargain booklet. Burke & James, Inc., 223 W. Madison St., Chicago.

**NEW TYPE SUPER PARVO DeBRIE** ultra silent with built-in motor, automatic dissolve, pilot pins, anti-buckling device. Four 1000 foot magazines, DeBrie friction tripod, finder, all accessories. Latest type equipment like new. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**230 DEGREE SHUTTER** Akeley Camera, X134, special focus on film attachment. 2", 4", 6", 12" lenses. Four 200 foot magazines, Akeley tripod, cases. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**SILENCED BELL & HOWELL** with check pawl shuttle 40 - 50 - 75 mm. F. 2.7 lenses mounted, two 1000 foot magazines, tripod, finder and sunshade. Rebuilt like new. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**SILENCED BELL & HOWELL** with new Fearless Movement, 40 - 50 - 75 mm. F. 2.7 lenses mounted. Two 1000 foot magazines, tripod, finder and sunshade. Perfect condition. Motion Picture Camera Supply, Inc., 723 Seventh Avenue, New York City. Cable—Cinecamera.

**MITCHELL CAMERA**; Mitchell & B. & H. Magazines; Mitchell Tripods; Cooke Lenses—mounted and unmounted; Duplex Printer; Magazine and Accessory Cases; and other miscellaneous equipment. Ed Estabrook, 430 No. Flores St., Hollywood. OR. 5003.

**BELL & HOWELL** and Eyemo Cameras, Lenses, Magazines, Tripods, Movielas, Splicers, all kinds of Sound and Laboratory equipment. Eastman and Dupont spliced negative, tested and guaranteed, 2 1/2¢ per foot, on daylight loading rolls, \$2.75. Inquiries invited. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood.

**FOR SALE**—Mitchell Camera. 5—400 ft. magazines, 3 Astro F2.3 lenses, regular tripod, 2 cases, sunshade, all built in features. Bargain. Write for particulars. Irving Browning, 110 West 40th St., N. Y. City.

**FOR SALE—MITCHELL CAMERA**—silenced—4 Astro F2.3 lenses. Friction head tripod, 2—1000 and 2—400 ft. magazines, 3 cases, sunshade and filter holder, Bi-pak adaptation. Follow focus all built in features. A1 condition. Irving Browning, 110 West 40th St., N. Y. City.

**FOR SALE**: Latest DeBrie L, all metal, motor, bayonet mount, five finest lenses, including Telephoto, latest tripod, high hat, cases, magazines, etc. Price \$775.00. BASS CAMERA COMPANY, 179 W. Madison St., Chicago, Ill.

**TWO AKELEY CAMERAS**, modern studio equipment, late models, full range of lenses. Prices \$850 and \$950. Camera Supply Company, Ltd., 1515 North Cahuenga Blvd., Hollywood.

### FOR SALE—SOUND RECORDERS AND EQUIPMENT

**ART REEVES**, latest model 1935, double system sound recording installation, factory guaranteed, Automatic Speed Control Motor, Twin Fidelity Optical Unit, Bomb microphone, the only genuine, modern, workable ArtReeves equipment for sale in Hollywood outside factory. Price, complete in every detail, \$2,400. Slightly used ArtReeves sound equipment, complete, \$1,800. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

**ART REEVES**, latest model 1935, double system sound recording installation, factory guaranteed, Automatic Speed Control Motor, Twin Fidelity Optical Unit, Bomb Microphone; he only genuine, modern, workable, Art Reeves equipment for sale in Hollywood outside factory. Price complete in every detail \$2,400. Slightly used Art Reeves Sound Equipment complete \$1,800. Camera Supply Company, Ltd., 1515 North Cahuenga Blvd., Hollywood.

### FOR SALE—SOUND PRINTERS AND EQUIPMENT

**3 BELL & HOWELL FIVE-WAY SOUND PRINTERS**, Motor Generators, panel control boards, Duplex Printer, specially adapted for duping. Sound and silent Movielas; Educational Blimp and Dolly; Bell & Howell Splicers, Title Board with lathe bed; Bell & Howell Silent Cameras, Bell & Howell Camera Motors, Bell & Howell high-speed gear box; Mitchell and Bell & Howell Friction Head Tripods. Above equipment used, but in perfect mechanical and optical condition at bargain prices. Hollywood Camera Exchange, 1600 N. Cahuenga Blvd., Hollywood, Calif. Cable address HOCAMEX.

### CAMERA REPAIRING

**BELL & HOWELL** cameras with old type shuttles silenced, \$150. Hollywood Motion Picture Equipment Co., 645 No. Martel Ave., Hollywood.

### FOR SALE—MISCELLANEOUS EQUIPMENT

**VERY POWERFUL FLOODLIGHTS** of new design. Will burn through a 1000 W. Rifle with Cable—\$5.00. With 12 foot collapsible Stand, \$22.50. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

### WANTED TO BUY

**WILL PAY CASH FOR**: Bell & Howell, Mitchell, Akeley or De Brie Cameras, lenses, motors, parts and accessories. Motion Picture Camera Supply, Inc., 723 7th Ave., New York. New York.

**MOTION PICTURE**—Still Picture—Laboratory and Cutting Room Equipment—Lenses—Finders—Tripods. Highest prices paid. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood, Calif.

### POSITION WANTED

**DO YOU WANT A CAMERAMAN** who is an expert on studio production; or an expedition cameraman who knows every corner of the world; or a cameraman who thoroughly understands the making of industrial pictures; or an expert newsreel photographer; or an expert color cameraman? A limited number of cameramen, backed by years of experience, are available. Write stating your requirements and we shall be glad to assist you in choosing the kind of cameraman you want. INTERNATIONAL PHOTOGRAPHER, 1605 North Cahuenga Ave., Hollywood.

**WANTED**: Situation as an actor in a film company by an Indian of a very high and aristocratic family. Knows many languages and other arts. Healthy, good looking, sportsman, and hard working. Wants to join for his future prospects. Willing to join on any reasonable terms. Please apply box No. D. P. 10, International Photographer, 1605 Cahuenga Ave., Hollywood.

**PORTER**—Reliable and trustworthy. Three years experience in camera shop. Ambitious and industrious. Best references. Clarence G. Session, c/o The Camera Shop, Fort Worth, Texas.

### MISCELLANEOUS

### THE INTERNATIONAL PROJECTIONIST

**THE INTERNATIONAL PROJECTIONIST**, a monthly magazine published in the interests of the projectionist. Interesting, instructive. Yearly subscription U. S. and possessions, \$2; foreign countries, \$2.50. James I. Finn Publishing Corp., 1 West 47th St., New York.

**BUYERS READ** these classified advertisements as you are now doing. If you have something for sale or exchange—advertise it in these columns. THE INTERNATIONAL PHOTOGRAPHER, 1605 No. Cahuenga Ave., Hollywood.

**COMPLETE COURSE IN FLYING**—If interested in aviation, see Roy Klaffki, 1605 North Cahuenga Ave., Hollywood.

**WANTED**—To know of the whereabouts of motion picture relics, documents, or equipment of a historical nature for Museum purposes. Write Earl Theisen, care of International Photographer, 1605 Cahuenga Ave., Hollywood.

**THE NEW YORK PUBLIC LIBRARY**, Office of the Director, New York City, would like to procure the following old issues of INTERNATIONAL PHOTOGRAPHERS—all of 1929; January to October of 1930; and November and December for 1931. It will be appreciated if anyone having these numbers will communicate with us or with R. J. Lingel of the New York Public Library.

# \$200

The cheapest "Buy" among publications allied to the Motion Picture Industry is

THE  
INTERNATIONAL PHOTOGRAPHER  
at \$2.00 per year.



# CINEMACARONI

By ROBERT TOBEY

(With sauce for those who like it.)



(A novel novel of a thousand and one nights  
in a daze)

By R. THRITIS

## Cast of Characters:

**Lili Liverblossom**, famous movie star, who doesn't show up in this installment: so what?

**Perriwether Murgle**, her press agent, quick on the trigger but not a very good shot.

**Willy Nilly**, a large Bald Eagle; family Halie etus Loucocephalus, if you care to try pronouncing it.

**Hiram von Willeze**, a down-at-the-heels director, who hasn't showed up in the story yet, and better hurry, or he'll be on the cutting room floor.

## Synopsis of Preceding Chapters:

Perri Murgle has been carried off across the desert by Willy Nilly. Lili, who needs Perri in her business, what I mean, casts about frantically for a way to rescue him. Meanwhile, Willy and Perri park on a desert hillock for a brief rest and Willy gets tight on a bottle of Scotch hair tonic so Perri has to take care of him the rest of the way home, wherever that is. Perri is flying off across the desert with Willy Nilly hanging on as we pick up the thread of the story. And us with nary a needle. Carry on!

## CHAPTER XII—THE HOME STRETCH DID I HEAR A YAWN?

"Come, snap out of it," said Perri. "Somebody has to show me how to get to your place. I'm no mind reader. How far is your eyrie from here, anyhow? I'm beginning to get pretty tired of this. You're a leady old soul, you know."

"Mush be pretty clesh to home," said Willy. "The ol' nest ought to be bush around the bend."

And sure enough, faintly there came an eerie call from a mountain just ahead of Perri.

"What's that cry?" said Perri, alarmed.

"Ish nothing to worry about," answered the Eagle. "Jush that ol' big hill there calling to one of its children."

"You're nerfs," said Perri. "No hill could call to its children even if it had some."

"Do you mean to shay," said the Eagle, "that you've never heard a mountain callin' to its li'l son? Listen . . ."

And sure enough, faintly there came the eerie cry: "O-o-o-o-h, Cliff!"

Perri veered off to the right and headed for the crest of the mountain ahead of him. As he approached, he could see a great niche hollowed out in the sheer declivity facing him. It was here he suspected Willy Nilly had his penthouse.

Reaching into his pocket, he pulled out a small telescope. This he trained on the face of the rock ahead, a simple feat, as this particular telescope Perri had purchased already trained from the Barnum and Bailey Circus.

Sure enough, perched there on the edge of the niche was a large female eagle. Behind her were two smaller eagles, scarcely in their teens, and unmistakably they were Willy Nilly's children. Through the telescope Perri distinctly heard one of them say:

"Maw, what'sa matter with paw? Is he sleeping in the park again?"

"Probably up with a sick friend," said Maw through clenched teeth, not realizing how near she was to the truth.

Perri hastily put away the telescope. He was in a mess, all right. Should he drop the very limp Willy Nilly right then and there, or should he take Willy home and brave the wrath of the Eagle's neglected family?

But when had a Murgle shirked a duty, Perri asked of himself. He didn't know the answer any more than you or I, but decided in favor of Richard the Lion-Hearted and headed bravely for the Eagles' lair, the home of Willy Nilly.

Mrs. Nilly was waiting to greet him.

(What will happen to Perri, when he gets to the Eagle's nest? What is Lili doing all this time? You'll find out next month, if I'm not busy fighting Mussolini.)

Anything may have happened by the time you read this, but last reports indicated John Barrymore was taxing his physical agility to the utmost to evade his former protegee-of-but-a-moment-ago, 19-year-old Elaine Barrie, or Jacobs, or something.

Can't see what's his hurry. He's a good thirty years ahead of her right now.

## KNEECAP REVIEWS

(Just fresh out of thumb-nails)

"HERE COMES COOKIE." This is a production consisting chiefly of Gracie Allen and George Burns, borne hither and yon on the wings of laughter—madly flapping wings, may I add. The thoroughly insane Gracie—who was it said (first) that genius was just across the line from insanity?—will amuse you no end in this fillum, unless you are one of the benighted few to whom Burns and Allen are just another couple of people getting too much money. If you are, I hope you get sand in your grapefruit, and I won't tell you the plot; if you are not, you don't care about the plot, you'll just go to see *Here Comes Burnsallen, Cookie or no Cookie*.

\*\*\*

"PAGE MISS GLORY." An interesting picture, although highly over-rated by those who now work for Mr. Hearst, or hope some day to snatch a pay-check from him. Marion Davies is surprisingly good, and amazingly youthful and beautiful. Half the value of the cellulocomedy is lost because it breaks into slapstick too often, and because M. D. is forced to overdo the part of the country gal. (P.S. I've been to Pride's Crossing, Hobbs' Corner and Prout's Neck). Dick Powell—and I like him, my children—is miscast, but does what he can. Pat O'Brien has never been better.

It's worth seeing.

## LITTLE THOUGHT FOR TODAY

I like stu-di-os.

Stu-di-os are full of people.

Peo-ple are full of ba-lo-ney.

Ba-lo-ney is good in sand-wich-es.

I am ve-ry fond of sand-wich-es;

They are so nour-ish-ing.

I like stu-di-os.

Thought-ful-ly,

R. THRITIS.

Reams have been written concerning the lengths to which industrious fan-letter writers go to bring themselves to the attention of the star to whom they are writing. Most of them know by now that few stars have time to personally attend to the flood of fan-mail, sometimes thousands of letters a day, that descends upon the glittering gods and goddesses of filmdom. So the bright ones among the fans devise some means to attract attention to their particular correspondence. The methods used range all the way from calling the stars names for referring the writer's handiwork to a secretary, to including any kind of present up to a live elephant with the letter.

The latest Foolish Fan Foible is that of an ardent Chicago admirer—or admires—of Donald Cook. This fan daily mails to Don a stack of

postcards such as Uncle Sam vends for one cent including postage. Every postcard has an individual message on it, mostly concerning the allegation that she loves Donald to the point of complete distraction. One day Don received 48 of the things, but the next day only 17 arrived, possibly because the gal was all tired out from the previous day's effort. The day she sent 48 she ran out of sentiments, too, and had to repeat on a few of them.

It is hard to find 48 ways of saying, "I love you." Even if you go in for foreign languages.

Theatre marquees the past month have had but the following tid-bit to offer:

THE KING SLEEPS  
with an  
ALL STAR CAST

THE MACARONI BOWL, by the Shovel Boys. (They dish the dirt.) \* \* \* There's one Pullman porter that will have a fancy tale to tell his grandchildren. When Grace Moore returned to Hollywood from her widely publicized European tour, she was met at the train by reporters, cameramen, and hundreds of fans. A porter on her train helped her down from the awkward train steps to pose for dozens of clicking cameras, and Miss Moore patted the porter on the shoulder and leaned on him for support as the pictures were taken. The porter's beaming smile could be seen for blocks. \* \* \* Dick Powell says the Italians haven't a chance. Al Jolson is going to put on a make-up and lead the Ethiopians.

Random Snatches at the Tennis Matches. \* \* \* "Lookit, there's Jimmy Cagney. Doesn't he look funny with that long hair?" "Sure, but I'll wear my hair like that any day for his salary." \* \* \* Harold Lloyd, struggling with the mob leaving after a big match, put his hands on his wife's shoulders and cried, "Never mind signals, just pass me the ball and let's go." \* \* \* Paulette Goddard, Chaplin's heartbeat, glimpsed talking animatedly to Kay Stammers, the English tennis player. Incidentally, Kay herself is pretty enough to be in pictures. \* \* \* Margaret Sullivan, in a perverse mood, wouldn't let the photogs get any pictures of her. They got in front of her and she turned her head around and talked to her husband, Willy Wyler, behind her. They went around behind her, and she kept her head around front. So then the boys split up, half in front and half behind, and it was too bad for Sullivan. \* \* \* A certain star, once "taps" but now tobogganing rapidly, was asked to appear in a newsreel being made at the matches, in Technicolor. The star condescended, and began to primp. She flicked at her gown. She arranged her hair. She adjusted her hat. She powdered. She powdered some more. Meanwhile two other stars of greater magnitude waited impatiently. Finally Madame Toboggan was ready. She sat at the table before the camera. Suddenly she raised her delicate eyebrows, and one hand. "Take that pie away," she said imperiously. "It won't photograph well in color." \* \* \* The matches brought out a bunch of celebs that rarely show at any public function, among whom were Ronald Colman, Janet Gaynor, Myrna Loy, Zasu Pitts, Marion Davies, Fred Astaire and Norma Shearer. \* \* \* Clark Gable and Bob Montgomery both appeared the same day at the matches with identical green sawed-off felt hats. Each was equally upset. \* \* \* Tough this year on the gals whose hearts have been going pitapat at thoughts of seeing Fred Perry play again. The handsome Britisher not only injured a kidney and couldn't play in the matches here, but to add insult to injury went and married himself right out of circulation. To Helen Vinson, of course—as if you didn't know! \* \* \*

Whaddya mean, fire the cameraman? Why not try a face lifting job, Miss Superstar.

# ADVERTISING PAYS, ONLY, IF YOUR MEDIUM IS ALL RIGHT.



*From the Director of Visual Education, of a large company in the east:*

"I read your interesting magazine and like it so much that I am asking our librarian to enter a subscription for my department."

*From the Executive Office of a motion picture corporation:*

"I have read with great interest, as I usually do, the last issue of *International Photographer*, and I am moved to congratulate you on the exceptional merit of this issue."

*From the Manager of Sales Promotion and Advertising, of a large camera company:*

"I want to congratulate you upon the progress you are making. You are producing a mighty interesting and constructive publication which is a sincere compliment to your ability."

*From a cameraman in Stockholm, Sweden:*

"The only way to follow motion picture production in Hollywood when you are not there is to buy *The International Photographer*, because it is the only dependable motion picture monthly in the world."

*From a newspaper man in New Mexico:*

"I have heard a great many complimentary remarks concerning your publication and would like to see a copy of same at the first opportunity."

*From a dealer in Europe:*

"Will you please be good enough to send us 12 more copies of the August issue and please send six additional copies each month until further notice."

*From one of the studios:*

"Will you please send us two or three copies, if you can do so, of the May, 1934, and July, 1934, issues of *International Photographer*. Our copies of these two have been so thumbed that the pages are falling out of them and we would like to replace them for reference purposes."

*From a subscriber in Indiana:*

"Formerly an Art Director in an advertising agency, I have been actively interested in both still and cine photography for over ten years. I attribute much of my present knowledge to your monthly, as much of the material is not published in book form."

"I am almost constantly in contact with photographic clubs, etc., all over the country, and my present observation is that there is a tremendously increasing number of advanced workers."

"As your publication was primarily for the professional and advanced amateur, I for one hope your past policy of offering many technical and involved articles will continue."

*From an advertiser, running a small ad:*

"I depend upon *The International Photographer* entirely for my out-of-town business and the results are most satisfactory."

## The INTERNATIONAL PHOTOGRAPHER

1605 Cahuenga Avenue, Hollywood, Calif. Phone GLadstone 3235.



# INTERNATIONAL PHOTOGRAPHER

## HOLLYWOOD

SIXTH YEAR

NOVEMBER, 1935

VOL. 7  
No. 10



STILL BY ART MARION

Charles King, Buck Jones and Ben Corbett, on location at the Major French Rancho, Malibu Hills, starring Buck Jones in "Sunset of Power." The technical and camera crews, invisible away over the first range of hills, are made up of Allen Thompson, first cameraman; Herb Kirkpatrick, operative cameraman; Director, Roy Taylor, First Unit; Director, Mike Eason. Second Unit; Art Marion, still cameraman; Bert Eason and Eddie Jones, assistants; Buddy Myers, sound engineer; Blackie Rozencrantz, props; George Robinson, grips. Buck Jones is his own producer and releases through the major studios. He is one of the most popular and profitable attractions of the screen.

25 CENTS  
A COPY

MOTION PICTURE ARTS AND CRAFTS

Franchot Tone, May 1966  
Healy, Robert Light 96 mins.

G-M  
CATCHY DANCE AND  
ERS CLEVERLY MIXED WITH COL  
UL ROMANCE IN DRAMATIC STO  
Director, David O. Selznick, Oliver  
Producer, Fleming; Author, Oliver  
Screenplay, P. J. Wolfson, Musical  
bers, Jerome Kern, Con Conrad,  
King, Editor, Margaret Booth  
George Folsley  
Direction, Expert Photography, Exce  
Sylvia Si

Anna Karenina  
Garbo and Fredric March  
"ANNA KARENINA"  
PERFORMANCES BY GARBO  
FREDRIC MARCH PUT THIS  
presentation of

A very fine production with Greta Garbo in a role that fits her admirably. Fredric March plays the role of Vronsky, the officer for whose love she desert her husband and child. Both handle their parts with a fine appreciation of the poignant drama with all its subtle evaluations. The play's novel is adhered more humanly. Garbo has never appeared more womanly and appealing. She also photographs wonderfully well. Clarence Brown handled the direction with consummate skill, and the help of a very clever script, has made this old romantic drama of the Czar's regime a modern interpretation without in any way destroying the authenticity of the classic original or taking any undue liberties. The settings are superb, and the Metro attention to authentic details is evident throughout the production. The play ends with Anna Karenina leaving the city on a train that departs shortly after she had rushed to the depot and said a last fond farewell to the man for whom she had sacrificed everything.

Cast: Greta Garbo, Maureen O'Sullivan, die Bartholomew, Basil Rathbone, Regina Robson, Basil Rathbone, Phoebe Foster, Reginald Denny, Phoebe Foster, Ella Ethelham, Buster Phelps, Ella Ethelham, Sidney Bracey, Cora S. Marsh, Joe E. Tozer, Guy D'Ennery, Mary Forbes, Ethel Griffies, Ford, Sarah Padden, David O. Selznick, Clarence Brown, Author, Co-Story, Screenplay, Clarence Viertel, Editor, Robert J. K. man, William Daniels, Direction, Excellent Best

"JALNA"  
 (HOLLYWOOD PREVIEW)  
 RKO Radio  
 FAIR CLASS DRAMA HANDICAP  
 IN GENERAL APPEAL BY UNSY  
 THETIC LOVE MIXUPS  
 Producer, Kenneth Macgowan, D.  
 John Cromwell, Author, Mazo de la Cerda  
 Screenplay, Anthony Veiller, Garrett  
 Barry Bachman, Cameraman, Edward Cron  
 Director, William Morgan  
 Direction, Best possible  
 Photography, A-

...ey and Herbert Marshall in  
CENT ON YOUTH"  
Phillip Reed, Astrid Allwyn.  
Ernest Cossart 77 mins  
G ROMANTIC COMEDY  
FOR ADULT TRADE, WITH  
L AND COSSART SCORING  
..., Douglas MacLean  
uggles, Author, Samson Rap  
enplay, Herbert Fields,  
Cameraman, Legn Shamroy,  
ering  
on, Nice Photography, A-1.

with Fredric Herbert  
United Artists  
SPLENDID PRO  
STELLAR PERFO  
PRESSIVELY.  
Director, Sidney  
Trevelyan, Scree  
Mordaunt Sharp,  
Cameraman, Gregg  
Direction, Exce  
Best

**"HOT TIP"**  
with ZaSu Pitts, James Gleason  
RKO Radio  
NICE BALANCING OF HORSE  
THRILLS AND COMEDY WITH  
AND GLEASON GOING OVER STRONG  
Producer, William Siström, Directors,   
McCarey, James Gleason, Screenplay, Hug  
Cummings, Olive Cooper, Louis Stevens  
Director, James Morley, Cameraman, Jack  
MacKenzie  
Very Good  
Photography, Ex-

**"TWO FOR TONIGHT"**  
with Bing Crosby, Joan Bennett  
LIGHTLY COMEDY-ROMANCE DON'T  
DELIGHTFUL KIDDING AIR THAT  
PLEASE THE FEMMES.  
n, Frank Tuttle. Authors, Max  
Lief, Screenplay, George Marion,  
Framan, Karl Struss  
n, Very Good  
Photography, Ex-

**FRANK ANGELL**  
 Arch, Merle Oberon,  
 rt Marshall  
 1 hr., 50 mins.  
**INSTRUCTION WITH THREE**  
**PERFORMANCES SCORES IM-**

Franklin, Author, R B  
 Play, Lillian Hellman,  
 Editor, Sherman Todd,  
 Toland  
 ent Photography, The

W. C. Fields in  
"THE MAN ON THE FLYING  
TRAPEZE"  
Mary Brian and Kathleen Howard

SING COMEDY WITH MORE INS.  
S ON GAGS THAN ON STORY  
PLEASE THE W. C. FIELDS FANS.  
ned straight at the W. C. Fields fan-  
this production will supply his follow-  
with an ample quota of laughs evoked  
the gag route. Otherwise the picture  
thin on story and rather short on cumu-  
lative suspense. What there is of plot  
concerns the nagging of Bill Fields by his  
wife and a couple of in-laws, while his  
daughter, Mary Brian, sticks up for him.  
top of that, climaxing a series of  
humors, he loses his job because he used  
mother-in-law funeral gag in order  
get an afternoon off—which inci-  
dally results in an avalanche of flowers  
sympathy being sent to his home, with  
ly comical results. But in the end  
gets his job back, because his mem-  
ber system is indispensable at the office.  
also finally squelches his family and  
takes the real head of the house.  
cast: W. C. Fields, Mary Brian, Kath-  
leen Howard, Grady Sutton, Vera Lewis,  
Littlefield, Oscar Apfel, Lew Kelly,  
Aylesworth, Tammany Young, Wal-  
ter Brennan, Harry Ekejian, Torr Johnson,  
Clyde

Producer, William LeBaron; Director,  
Bruckman; Authors, Charles Bogle,  
Grady; Screenplay, Ray Harris, Sam  
Cameraman, Al Gikis; Editor, Rich-  
ard

ing, Good Photographs

**"PHOTOGRAPHY Excellent"**

If you read the reports of newspaper and trade paper movie critics, the above phrase is a familiar one. Today the cameraman plays an ever increasing part in the production of every successful motion picture. Through the exercise of his special talents, he assists in creating the one proper mood and atmosphere for the story. He helps to weld the work of actor, director and scenarist into an artistic composition.



Ref. 11, p. 260

DU PONT FILM MANUFACTURING CORPORATION

35 WEST 45<sup>TH</sup> STREET  
NEW YORK CITY

SMITH & ALLER LTD.  
6656 .. SANTA MONICA BLVD.  
HOLLYWOOD, CAL.

PLANT . . . PARLIN, N. J.

THE  TRADEMARK HAS NEVER BEEN PLACED ON AN INFERIOR PRODUCT



# A Technicolor Man In Nippon



When Will Cline, one of Technicolor's famous color engineers, was in Japan recently, he shot a lot of super beautiful stills, all of which were worthy of reproduction.

Lack of space forbids a larger number to be printed here, but it may be that some day Mr. Cline may hold a one man's salon featuring his Japanese pictures and The International Photographer will hope to have space to publish them all.

Mr. Cline is at present up at Big Bear working on that gorgeous Technicolor feature, "Trail of the Lonesome Pine," a two months' shooting job.

Upper left: One of the greatest art objects in the world—an image of the Lord Gautama Buddha, "The Light of Asia." This Buddha is part of one of the most famous Buddhist temples in Nippon.

Upper right: A glorious study in earth and cloud with the perfect mountain, "Fujiyama," on the skyline in the center of the shot. Mr. Cline did a fine piece of photographic engineering here.

Left center: Our handsome young cameraman of the Technicolor staff standing between two Japanese motion picture stars

on Stage No. 1 of the P.C.L. Studios. Note one of the big battery of Technicolor cameras with Harry Mimura beside it. This young Japanese gentleman is a graduate of the Hollywood school of cinematography.

Right center: "The Old, Old Story" told in the shadow of that grand old landmark of the Nippon Empire, Fujiyama. "It hangs from heaven like an open fan" and never yet has an observer of it wearied of the sight.

Lower left: Cameraman Cline leaves his impressive looking Technicolor camera long enough to feed four deer who followed him around the temple park. There the camera was often set up and our artist assured the editor that his friendship with these deer was one of the never-to-be-forgotten incidents of his sojourn in Japan.

Lower right: Artist Cline photographed this gorgeous natural setting in the midst of the Cherry Blossom Season in old Nippon. This is fairy stuff if there ever was any and the reader may imagine the glory of this sight when filmed in nature's own colors after passing through that magic box—a Technicolor camera.

# INTERNATIONAL PHOTOGRAPHER

MOTION PICTURE ARTS AND CRAFTS

Vol. 7 HOLLYWOOD, CALIFORNIA, NOVEMBER, 1935 No. 10

SILAS EDGAR SNYDER, *Editor-in-Chief*

EARL THEISEN and CHARLES FELSTEAD, *Associate Editors*

LEWIS W. PHYSIOC, FRED WESTERBERG, *Technical Editors*

HELEN BOYCE, *Business Manager*

A Monthly Publication Dedicated to the Advancement of Cinematography in All Its Branches; Professional and Amateur; Photography; Laboratory and Processing. Film Editing, Sound Recording, Projection, Pictorialists.

## CONTENTS

Front Cover Still by Art Marion	
FRONTISPIECE by Will Cline	1
LIGHTING PROBLEMS OF THE COMMERCIAL MOTION PICTURE PRODUCER	3
By Walter A. Rivers	
A STORY OF THE MOVIOLA	4
By Earl Theisen	
THE IMPORTANCE OF HAIR IN FILMS	5
By Max Firestein	
NOTES ON COLOR	6
By Robert M. Parker	
ALONG THE WATER FRONT	8
By Karl A. Barleben, Jr., F.R.P.S.	
MOTION PICTURE SOUND RECORDING, Chapter XXIII	10
By Charles Felstead	
WIDE ANGLE SHOTS	12
By Herbert Aller	
RECENT PHOTOGRAPH AND SOUND PATENTS	13
By Robert Fulwider	
THE USE OF MAZDA LAMPS FOR COLOR PHOTOGRAPHY	14
By Robert G. Linderman	
THE NEW SILENT MOVIE CAMERA	15
HISTORICAL BACKGROUND OF THE SPEED PANCHRO LENSES	16 and 17
R. Fawn Mitchell	
REEVES-LITE	18 and 19
TRESPASSING ON THE STRONGHOLD OF THE STORM GODS	20
By Chalmer D. Sinkey	
All photographs by Mrs. Chalmer D. Sinkey	
A SUPER POWERED ARC SPOT LIGHT	22 and 23
By Peter Mole	
BETTER HOME PRODUCTION—16mm.	23
By F. Hamilton Riddell	
MINIATURE CAMERA PHOTOGRAPHY	26 and 27
By Augustus Wolfman	
A VOICE FROM ENGLAND	28
STILLS & CAPTIONS	29
By Harry Cottrell	
CLASSIFIED	30
WESTERBERG TABLES	31
CINEMACARONI	32
By Robert Tobey	

Entered as second class matter Sept. 30, 1930, at the Post Office at Los Angeles, California, under the act of March 3, 1879.

Copyright 1935 by Local 659, I. A. T. S. E. and M. P. M. O. of the United States and Canada

Office of publication, 1605 North Cahuenga Avenue, Hollywood, California  
GLadstone 3235

James J. Finn, 1 West 47th St., New York, Eastern Representative  
McGill's, 179 and 218 Elizabeth St., Melbourne, Australian and New Zealand agents  
Subscription Rates—United States and Canada, \$2 a year. Single copies, 25 cents

This Magazine represents the entire personnel of photographers now engaged in professional production of motion pictures in the United States and Canada. Thus THE INTERNATIONAL PHOTOGRAPHER becomes the voice of the Entire Craft, covering a field that reaches from coast to coast across North America.  
Printed in the U. S. A. at Hollywood, California



80 IPEU  
SERVICE ENGRAVING CO



Motion Picture Arts and Crafts will be emphasized in the International Photographer henceforth.

A year's subscription to the International Photographer is \$2.50 in the United States and \$3.00 in Canada and the Foreign Countries.

A new 16mm. Department under the direction of Mr. F. Hamilton Riddell makes its bow this month. It will be different—and watch it grow.

## "SCRIPT TO SCREEN"

Lewis W. Physioc's wonderful new book on motion picture production, for which the whole cinema world has been eagerly looking since the first photoplay was made, is on its way to publication and an important announcement regarding it will be made in the December issue of International Photographer.

THE CINEMATOGRAPHER'S  
BOOK  
OF  
TABLES  
•  
WESTERBERG

16 MM. -  
35 MM.  
\$1.00  
At Your Dealers



# Lighting Problems of the Commercial Motion Picture Producer

By WALTER A. RIVERS  
(*Western Production Manager Castle Films*)



Making grocery store sequence of "Golden Hands," four-reel talking motion picture produced by the Fruit Dispatch Company.

**L**IGHTING a commercial motion picture scene in a manner to insure quality photography; to capture on celluloid both a sharpness of image and artistry of setting, is a problem that adds many a gray hair to the worried head of the producer of commercial motion pictures.

And it must be remembered that this harried individual has plenty of other "headaches" to make his life anything but a sinecure.

Unlike his more affluent brother of the cinemas—the theatrical motion picture producer—the commercial producer rarely has a two-acre stage with four carloads of sun-arcs, rifles and spots, to say nothing of a small army of skilled electricians, at his back and call to turn the darkened recesses of his scene of operations into a blazing glory of light.

His activities are, as a rule, rigidly restricted by an unelastic budget, small to begin with and inadequate for anything but a modest expenditure in this highly important department of motion picture production.

On top of this, he is hampered by the fact that his script calls for the filming of actual production scenes in factories, in stores, in offices and frequently in nooks and crannies so small that to attempt to squeeze in a typical studio light would be like trying to house a circus elephant in a fox-terrier's doghouse.

One might think these handicaps sufficient to discourage even the most optimistic of industrial producers. But his troubles do not end there. Nine times out of ten the customer for whom the picture is being produced has dreams of greatness all his own. He has, let us say, for a long time in secret contemplated the day when he would have a motion picture of his own industry produced. With the wife and kids he has regularly attended his favorite motion picture theatre. Unlike those about him, he has not been entirely absorbed by the exciting plot or the sex appeal of the lovely feminine star. His interest has reached beyond that; he has studied the technique of the production itself; he has been thrilled by marvelous lighting effects and then and there has decided that when the day arrives for the making of his own business picture he will see that these same effects are

used in his picture.

But right there he fails to take into consideration a vital factor—the element of cost. The gap between the production budget for his business motion picture and that of the major studio theatrical production is wider than the Grand Canyon.

So what?

It becomes a case of compromise. A case of finding lighting equipment that will first of all adequately serve the needs of the commercial producer in permitting him to give at least the semblance of a major studio lighting job and at the same time not drain his pocket book to the very bottom. Also his lighting equipment must further meet these requirements: it must be "tops" in portability, adaptability and in professional appearance.

Let us take that last requirement—professional appearance—and question it a bit. Putting aside the practicability of regular major studio lights when working in the usual narrow confines of factories and manufacturing plants, what is there left to take their place? The multitudinous and varied types of amateur movies lighting equipment? True. Plenty of it and a great deal quite efficient up to a certain point. But—and here's the rub. The business motion picture producer, if he is the type that turns out a competent and professional product, is not an amateur by any manner of means. His cameras and his technicians are professional in every sense of the word. Such being the case, he cannot with "face," as the Chinese would say, move onto a job with a mess of amateur lighting equipment. His lights, like his cameras, his sound equipment and the rest of his paraphernalia, must have the earmarks, as well as the efficiency, of professional studio lamps. Combining those two things, efficiency and professional appearance, presents a real problem.

In more than a decade of experience in the production of business motion pictures, ranging from the days of the old style "trip-through-the-factory" type of commercial production to the present major studio quality requirements of the present day, the writer has had dealings and grief galore with about every sort of light obtainable.

Thanks to the fact that light manufacturers at last have awakened to the needs of the commercial film producer, there is today

(Turn to Page 31)





# The Story of the Moviola

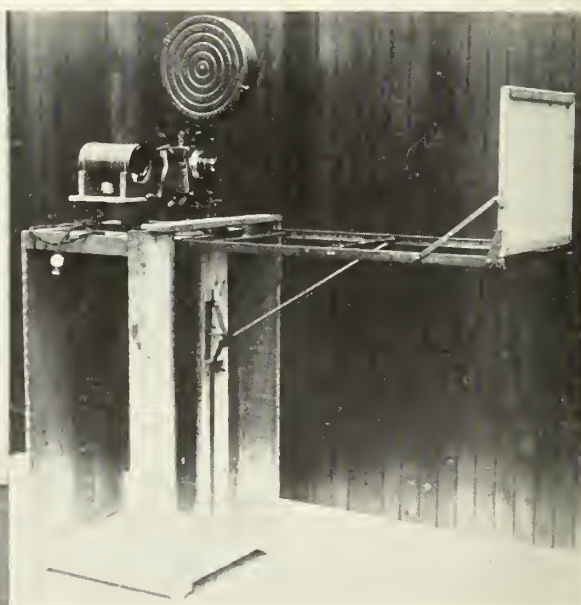
By EARL THEISEN, *Associate Editor*

**T**HAT is my new jerk-absorbing device," stated Mr. Iwan Serrurier, owner of the Moviola Company, who was showing me through his factory over at 1451 North Gordon Street, in Hollywood. "It is designed to fit in the valve of the magazine," Mr. Serrurier continued, "so as to prevent damage to the film from the jerking due to the sudden starting of the equipment."

The little device with its simple roller and spring piston arrangement was like the rest of the Moviola line. It was designed and made from the dictates of actual experience to fill a need. So

cranking the pictures were viewed on a 9 by 12 inch screen. The film went from the projector through a hole in the table and into a basket. There were a number of other attempts to do something about a film editing tool, but in each instance the device was a makeshift using discarded equipment.

Then along came Iwan Serrurier with ideas and ability to see the ideas realized. Although he was born and raised in Leiden, Holland, he received his college education in Zurich, Switzerland, because, as he says, "they offered the kind of mechanical training I wanted."



Left—Special Moviola made for Walt Disney for editing and synchronizing sound cartoons. Four sound tracks and one picture film can run simultaneously. Right—The granddaddy of the present Moviola; a home movie device in which the screen folded into the cabinet.

necessary and so obvious are the improvements introduced by the Moviola Company, they are accepted as a matter of fact rather than a startling innovation.

To imagine a cutting room without a moviola would be impossible. The moviola is as much a part of a cutting room as the cutter himself. Yet the mechanical books on the motion picture of a few years ago show the cutter holding the film up to the light trying to find the "suitable spot." He perspired over the film frame by frame, squinted at it through a magnifier, and he waded through it on the floor.

Then the moviola came along and eliminated this tedious drudgery. Like the saw is to the carpenter, the moviola is the badge of the cutter.

"Dozens claim they bought the first moviola from me," Mr. Iwan Serrurier made the statement.

Moviola number one sold to Douglas Fairbanks on September 16, 1924, for \$125. Numbers two and three sold to Universal on September 24, 1924, and Mary Pickford bought number four on October 13, 1924. The first sound moviola sold to Educational Studios on January 29, 1929, and the first 16 mm. moviola sold to William Horsley Laboratory on October 1, 1926.

Before the advent of the moviola, a number of persons tried to do something about making direct viewing devices which for various reasons were never widely adopted. One such improvisation was the old Edison projector head which was anchored to a table in the cutting room at the Lasky Laboratory. By hand

He came to the United States in 1903, and to Los Angeles a year later, where he found employment doing mechanical jobs until the war broke out. Then Mr. Serrurier worked in the shipyards doing mechanical drawing and designing, a job much to his liking.

During this time as a hobby he was spending his spare time making movie devices, of which one was to be the grand-daddy of the moviola. Along about 1917 he got the idea that a home movie projector that was enclosed in a cabinet like the Victrola would be welcomed by the public, hence the coined name, movi from movie and ola from Victrola. The trademark, Moviola, now identified inseparably with the cutter and his part in film production, was registered on April 8, 1919.

The first patent of a number granted to Iwan Serrurier on the moviola was issued April 8, 1919, as United States Patent No.

Phone GLadstone 4151

## HOLLYWOOD STATE BANK

The only Bank in the Industrial District of Hollywood  
under State Supervision

Santa Monica Boulevard at Highland Avenue



1,299,729, "Picture Projecting Apparatus," from an application dated October 25, 1917. Subsequently the moviola was patented in Canada, France, and England.

The first moviola was a far cry from the present device; in fact it was a home movie projector enclosed in a victrola-like cabinet. The first cabinet utilized a Motiograph projector head of the vintage patented in 1909, and threw pictures to a 12 by 18 inch screen. The screen when not in use folded into the cabinet. After the first experimental moviola was demonstrated as practical, Mr. Serrurier wanted "a projector that would run backward as well as forward" for his home movie equipment, so he went to Chicago and then to New York, trying to locate a suitable movement. He knew the public wanted to run short home movies, to rewind them, and he also knew of the necessity of having a small, durable intermittent. Not being able to find the desired device in the United States, he went to Europe, where in France he located two makes of projectors, the Guilbert projector, of which he bought four, and the Mollier, of which he bought a number.

Twenty cabinets were made and equipped with these projectors, which sold to various individuals and to the movie studios during the period prior to 1924. Some of them are still in use in the studio executive offices for viewing "dailies" and other film. In fact in October of this year four of them which saw constant use since 1924 at Metro-Goldwyn-Mayer were overhauled.

While contacting and selling the cabinets in the studios, he saw the need of a small direct viewing device for the cutting rooms. He set out to make such a device.

Because the foreign projector intermittents were noisy, Mr. Serrurier decided to use parts made for a standard American projector which he assembled for the moviola movement.

Within a short time business increased and Serrurier designed and started making his own Geneva movement which he has continued to use since.

The Maltese cross of the intermittent is made of "yellow label" carbon tool steel, and is ground in a special jig, after which it is polished and carefully fitted by hand. That accounts for the long

life and silence of the moviola equipment. The wearing parts that come into contact with the film are made of bearing bronze, while the parts such as sprockets and other precision parts that are handled and subject to the rusting and corrosion due to the hands are white nickel plated.

The paint on the body parts is of the hard crystal finish with an undercoat of baking japan, and both are baked on the equipment.

The moviola factory is not a factory in the conventional sense of the word.

Out in front of the manufacturing part of the concern is a court. It is hemmed in on all sides by large buildings and has ping pong tables, palm trees and places to sit in the sun and philosophize if one is so inclined. On one side is a group of ten fully equipped cutting rooms. In front, for the convenience of the cutters and moviola makers, is a restaurant.

A novel feature is an underground concrete vault for film storage. Space in this vault, with its constant underground temperature and other conveniences, is rented to outside individuals. Whoever rents a section has available a lock arrangement that safeguards his film cans.

Within the factory proper is a heterogeneous mass of steel tools, lathes, milling machines, radio, chairs, and moviolas. Seventeen men are employed making moviolas and all the other tools needed by the cutter for all parts of the world.

Just now a large order is being filled for Russia. China, Japan, India, England, France, Australia, and other countries use the moviola. "In fact," Mr. Serrurier says, "it would be easier to name the countries that do not use them."

Some of the earliest moviolas are still in use. Harmon Weight, a cutter, has one of the very first moviolas which he bought in December, 1925. It is still in use, and Mr. Weight says, "I am going to keep it in the family."

Two of the experimental models made before the moviolas were offered for sale are on display in the Motion Picture Gallery of the Los Angeles Museum.

# The Importance of Hair in Films

By MAX FIRESTEIN,

*General Manager, Max Factor Studios*



IT WAS just a year ago that Mr. Max Factor made the statement at an executive conference that the coming year would see hair playing such a prominent part in motion pictures that even the film critics would be mentioning wigs and hairdressing along with story construction and acting performance. He declared that hair would be of as much importance as make-up.

A year passed and—"A Midsummer Night's Dream" came to the screen with one of the most brilliant openings in the history of Hollywood. The following morning found an enthusiastic review in *Variety* in which the critic declared that Max Factor wigs were outstandingly effective in creating the absorbing illusions. But that is not all. Two weeks previous "The Three Musketeers" was previewed, and a critic on the *Hollywood Reporter* included in his review the statement that "the wigs lend finesse to the picture."

Mr. Factor was right in his prediction. During the past year the industry HAS become hair-conscious. During the past year more wigs have been used in films than during any other similar period in the history of picture making.

Firm in his belief that hair would increase in importance, Mr. Factor set about to meet the industry's needs in this line just as he has been doing for twenty-seven years in the make-up field. Already, our organization had gone deeply into the wig field. It had developed the "hair lace" creations which made it possible for the cameramen to photograph wigs so they look as natural as though they had grown on the players' heads. But we wanted to do still more. We wanted to give a service as nearly perfect as is humanly possible. So, from England we brought James Barker, and from his own exclusive salon we brought Fred Fredericks to round out our hair department.

Barker, for many years in Hollywood, had gone to England with Alexander Korda and in addition to heading his make-up department, designed all of the wigs for Korda's great films, such as "Henry the Eighth," "Katherine the Great," and "Don Juan." He became England's leading hair expert. Because of his all-around knowledge of make-up and color values, important to the cinematographer, Barker can be of valuable assistance to the cameraman.

Fredericks, too, is a make-up artist as well as hair expert. We feel that this combination of knowledge is necessary for the

best film results. You cannot transfer a brilliant hairdresser from private practice into the studio field and expect him to be of great value, for he does not know the technical needs of film making. He does not think of the photographic values when he is working. He thinks only of how his work is going to look to him. Hair experts in films must always work with one idea in mind—will it photograph well?

In our organization we try to give service that will aid the technicians and save the company money. It is for that reason we have a research department and a hair library that makes it possible for us to reproduce the hair style of any period in history, and place upon it the absolute stamp of authenticity. It is because we believe in service that our experts discuss with the cameramen the photographic problems of certain stars so that we can create a hair style for them that will blend with the facial contours that lend to the best photographic results. We believe in building the hair style for the camera, as well as for the star. We do not want to create a design that will present photographic problems and cameramen will find our experts anxious to work with them, to co-operate in any way that will bring about more photographic beauty.

Many are the problems that face a hair department. For instance, in the "Last Days of Pompeii" we had to guard constantly against making the men look effeminate in the curly wigs of that time. It takes intelligent co-operation between make-up artist, cameraman and the wig maker to put curls on a man and still keep him masculine in appearance.

No so long ago a certain studio handed us a problem. A shade of red hair was wanted that would photograph white when filmed through a particular red filter, but which would photograph the natural dark shade when shot through a blue filter. The solution came about by using exactly the same shade of red as was the filter.

It is service such as the above that a hair department must give if it is to be of value to the industry. We welcome such problems and are happy to work with the cameramen and others in achieving new screen triumphs. Our experts delight in working out styles that will help the cameraman in his efforts to enhance the beauty points and eliminate the defects of the players.



*Instructor of Photography,  
Polytechnic Evening  
High School*



**COLOR PHOTOGRAPHY**, as it stands today, has a background of some sixty years of experimentation and application. Its development has been retarded by its intricacies; the enthusiasm for its possibilities, tempered by the tediousness of its production. A number of its devotees, ill-prepared to meet its rigors and exactitudes, have dropped by the way. One does not master color photography over the week-end. Those who persevered have gone far. And their future is bright.

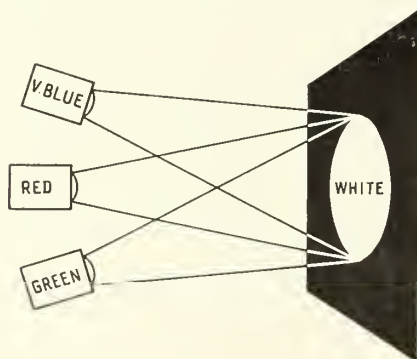
It is bright, not because the black and white photography is bad, but rather because it is often, in these days, so very, very good. Through Stieglitz, through his protege, Steichen, through the efforts of an increasing number of excellent photographers all over the world, the black and white photograph has achieved a surprising degree of perfection. Perfection is static. We prefer to push on, in one way or another. Through the years we have stripped the black and white photograph of its excrescences, its insincerities and evasions. Now, in the name of novelty, we must add something. Color!

We add something, that is, at least in the material sense. For there are those who, bearing in mind what Shaw refers to as "that great range of art that lies outside colors," are of the opinion that color serves merely to gild the lily of line, mass, light and shade. With this controversy we are not here concerned. We are concerned simply with noting that color in the photographic field has come far and gives every indication of being about to go further.

There will be no attempt in the following discussion to describe the various processes by means of which color photographs are made. It is the writer's intention at this point, simply to furnish a foundation, which it is hoped will contribute to the comprehensibility of subsequent articles on color photography.

In the first place, the photographer is concerned with two methods of producing color, the **ADDITIVE** and the **SUBTRACTIVE**. These systems are simple to those who understand them, but unquestionably, at first glance, they are confusing.

The **ADDITIVE** system of producing color is well named. A prism will break down (disperse) white light into component wave-lengths (spectrum), and it is apparent that if these component wave-lengths are re-combined, again we have white light. Thus if we place three projectors (Fig. 1), so that they point to a



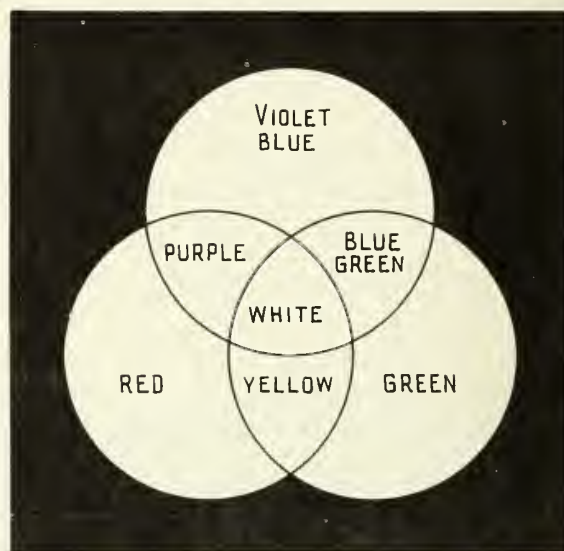
**Fig.1-Effect of adding colored lights**

darkened screen, and allot each of the three primary colored slides (Violet Blue—Red—Green) to the three projectors, we observe that when we superimpose each colored disc upon the other, they combine to form white light upon the screen. Red and green will produce a yellow disc. Violet blue and red will pro-

# NOTES ON COLOR

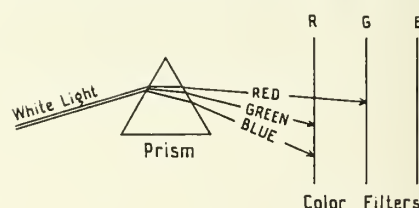
By ROBERT M. PARKER,

duce a purple disc. Examine an Agfa Color Plate with a magnifying glass and you will discover that all the colors are produced additively. (Fig. 11.) Perhaps you may wonder why Tech-



**Fig.2-Additive Process**

nicolor is not likewise the additive process. Investigation will reveal the fact that the colored gum arabic grains in the Agfa Color Plate are entirely separate from each other (not superimposed), and when the plate is held up to white light, the incident white light must pass through each grain separately, to be partially absorbed (depending upon the color of the grain). Thus each colored grain becomes a miniature color filter. In the case of Technicolor (imbibition process), the colors are laid one upon the other and portions of the incident light are subtracted as the light passes through each layer of color. If, instead of separating the three projectors as in Fig. 1, we used one only and all three



**Fig.3-Effect of subtracting colored lights**

colored slides of the primary colors were placed one behind the other, the incident light from the projector lamp would never reach the screen, for the reason that each colored slide would subtract all but its own color from the incident light, until there would be nothing of the incident light remaining.

**35mm. Eastman or Dupont**

Fresh Gray Backed Negative

Price 2½¢ per Foot

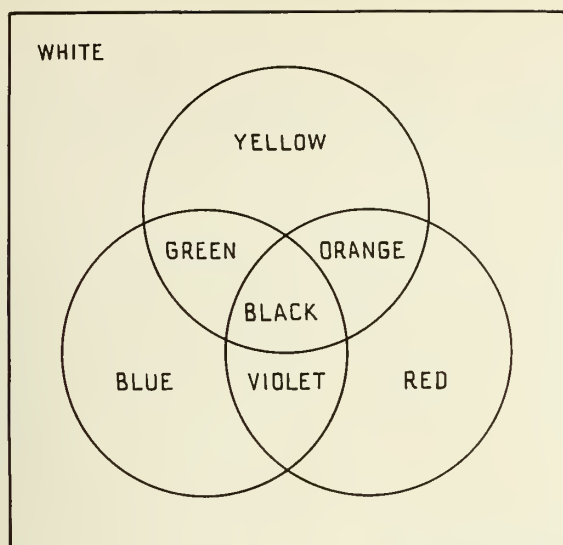
for

AMATEURS or PROFESSIONALS

**KINEMA KRAFTS COMPANY**

6510 Selma Ave. Hollywood, Calif. GLadstone 0276





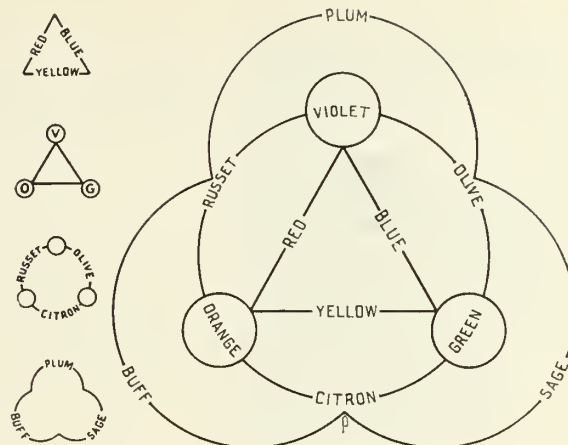
**Fig. 4-Subtractive Process**

Thus, in the SUBTRACTIVE system we are dealing with colors (pigment or dye) laid one upon the other, while the ADDITIVE system deals with the adding of colored lights. In Fig. 4 we see the results of placing colored pigment upon a white sheet of paper. By placing all three primaries (Yellow—Blue—Red) one upon the other, we should produce black if the pigment in the colors were of correct chroma and intensity.

In Fig. IV we see how the primary colors produce secondary colors, and in Fig. V we observe the way in which subsequent tertiary and quaternary colors are produced.

#### PRIMARY COLORS

1. Red.
2. Yellow.
3. Blue.



#### SECONDARY OR BINARY COLORS

1. Blue + Blue = Violet.
2. Blue + Yellow = Green.
3. Yellow + Red = Orange.

#### TERTIARY COLORS

1. Green + Violet = Olive.
2. Orange + Green = Citrine.
3. Orange + Violet = Russet.

#### QUATERNARY COLORS

1. Olive + Citrine = Sage.
2. Citrine + Russet = Buff.
3. Russet + Olive = Plum.

It is apparent that the photographer is concerned with both the ADDITIVE and the SUBTRACTIVE processes of producing color. In the making of three color negatives, he utilizes the ADDITIVE. When making the three color transfers from the colored tissues, he uses the SUBTRACTIVE.

Subsequent articles will deal with the actual technique of producing colored photographs.

## B & H FILMSOUND LIBRARY

The release of fourteen one-reel motion picture episodes based on Old Testament stories is announced by the Bell & Howell FILMOSOUND Rental Library. This non-sectarian 16 mm. sound-on-film series offers the following titles: "Creation," "Cain and Abel," "Noah and the Ark," "The Deluge," "Abraham," "Migration," "Abraham and Lot," "The Rescue of Lot," "Isaac, the Boy," "Ishmael," "The Sacrifice of Isaac," "Isaac and Rebekah," "Jacob and Rachel," and "The Return of Jacob."

This series was produced in Hollywood, always adequately, and often lavishly, under the personal supervision of Rev. Harwood Huntington. No expense or effort was spared to assure authenticity in even the smallest detail. The narration, by Wilfrid Lucas, is reverent and based upon sound Biblical scholarship. The sound effects are interestingly effective.

Here is something that clergymen and all others interested in religious education have long been looking for and will welcome enthusiastically.

Each reel is independent of the rest and complete in itself, for separate showings without reference to any of the others. However, the reels can readily be grouped together into a continuous feature picture. For instance, six, seven, or more reels can be selected and projected as a full evening's program replete with educational and entertainment value. Furthermore, the subjects can be projected serially, as part of periodical programing, general entertainment and educational films. In such a case, a brief narrative review of the preceding reel, with high spots of the motion picture used in that reel, introduces each reel when it is shown in the series.

It will be seen that there are at least three different ways in which these fine Biblical subjects can be used, a flexibility which should add tremendously to their splendid intrinsic worth. The films can be rented or bought outright only through the Bell & Howell Company and its authorized library outlets. Arrangements can also be made for outright purchase of 35 mm. prints.



## CAMERA & PROP RENTALS

Camera Supply Co.

1515 Cahuenga Blvd.

Hollywood, Calif.

Ruddy Geraus, Manager  
Gladstone 2404

Nite Phone GLadstone 6583  
Cable Address — "CAMERAS"



# Along the Water-Front

By KARL A.  
BARLEBEN, JR.,  
F.R.P.S.

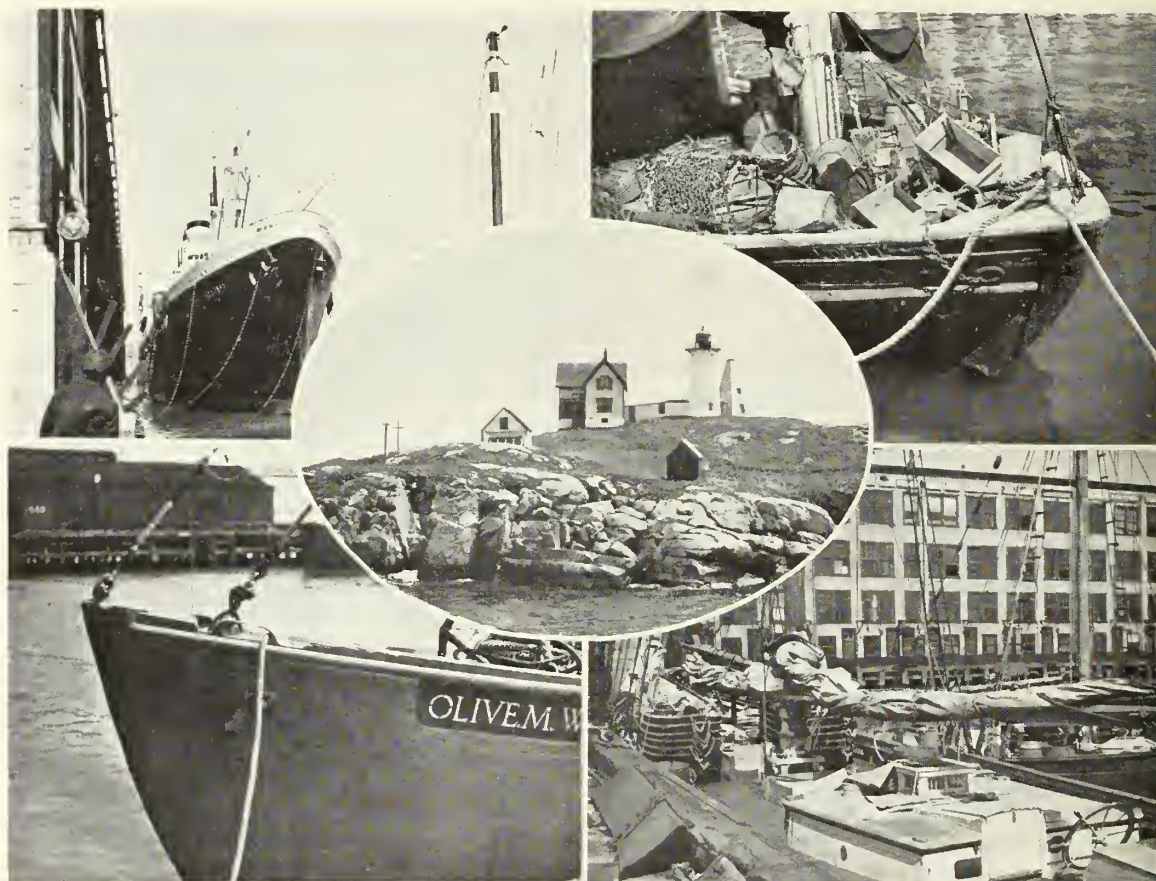


AMERAIISTS who live near the water are indeed fortunate, for there is nothing quite the equal to spending a day scouting for pictures that have a salty tang. Not only is the air bracing and invigorating, making one feel more like living, but the subjects available to the camera lens are unlimited. More than this, the same places

ing for far-off places and travel, with which stay-at-homes console themselves by virtue of necessity. No wonder that amateur photographers make a bee-line for the water's edge at every opportunity. It satisfies a vague longing which is inherent in us all.

The larger cities offer teeming activity, together with pictorial atmosphere. The huge ocean liners coming and going, loading and unloading; tugs chugging their way here and there; fishing boats, filthy dirty, loaded with fish, baskets, nets, and all sorts of gear; graceful pleasure cruisers now and then gliding majestically by; barges which seem hardly able to keep afloat with their ponderous cargoes; the piers to which small and large craft are tied; the squatter-camps hidden in the out-of-the-way corners of warehouses and docks—all go to provide unending picture material for the enthusiast who knows what to look for, and where to look for it.

The rural sections, too, have their water-front, although it is somewhat different from that found in the cities. Small fishing



Upper Left—The Hamburg-American-North German Lloyd liner "Deutschland" at her New York City Pier. Leicaphoto by Karl A. Barleben, Jr. Upper Right—Junk-cluttered deck of a fishing boat at the fish-piers on the East River, New York City. Leicaphoto by Karl A. Barleben, Jr. Center—Nubble Light, York Beach, Maine—one of the favorite spots for artists and photographers on the Maine coast. Leicaphoto by Karl A. Barleben, Jr. Lower Right—The deck of a fishing vessel—fish-piers, New York City. Leicaphoto by Karl A. Barleben, Jr. Lower Left—The nose of a fishing boat. Leicaphoto by Karl A. Barleben, Jr.

change from day to day, so that one need never fear of exhausting the possibilities of one area. Water-front pictures are available to city as well as small town dwellers. Many people who do not live near the water come many miles to spend a vacation or a week-end just to be near it. On the other hand, there are those who live right within a stone's throw, so to speak, of fascinating marine views, yet never bother about them. It is much like the case of Bostonians never having visited the Bunker Hill monument and the New Yorkers the Statue of Liberty—we more or less think that other fields are greener than our own.

The sea and ships have provided photographers throughout the years with marvelous picture material—witness the photographic salons, the roto sections of newspapers, and the magazines. A marine picture seems to be always good to look at. There is in it not only a beautiful picture, but possibly the long-

towns, such as abound in New England, for example, are the targets of pictorialists from all over the country. Gloucester, Marblehead, Cape Ann, and other lovely spots in Massachusetts enjoy quite a boom during the summer season, for artists and photographers go to these places by the hundreds and remain all summer, drinking in the delights of marine beauty afforded. Gloucester, a famous old fishing village, offers tiny wooden houses facing narrow, crooked streets. Fishermen of the old school, such as are pictured quite frequently, are here in person and willing enough to pose for the camera or canvas. Their dilapidated sailing vessels rock gently with the swell just off shore, going and coming almost daily. Imagine the treat in store for the active marine photographer who is after pictorial results in such a place!

Another type of water-front which is also popular is the sandy or rocky shore. The state of Maine was indeed well provided by



nature with such shores, and as a result tourists never fail to stop over at Old Orchard Beach, Ogunquit, York Beach, and others which run almost one after another on the map as one travels along the coast. Here real surf pictures are to be found—not the feeble little wavelets which most of us are accustomed to seeing. Here the water is stinging-cold and salty, bathing being possible only for limited minutes in the summer because prolonged immersion in the water causes numbness from cold. The cold, green waves dash with mad fury against the rocky cliffs, bursting into a snow-white spray which is awe-inspiring to see. A real, substantial boom accompanies each roller as it crashes against the rocks. Or again, the smooth, sandy beaches offer a long, even ride for the tides—the rollers come in, travel a long distance along the sand with a peculiar sandy grating, spend themselves in white water, then swiftly slip back into the sea after reaching their uppermost crest on the sand. Day in, day out, year in, year out, this process of nature goes on with the tides. One day calm, the next blustery, the next possibly fierce and strong, depending upon the weather. No two days, there-

fore, are alike. Each brings its own beauties for photography, and that is why cameraists cannot simply go to such places for only a day or two—they must remain and make the most of their opportunities over a period of days or even weeks.

The equipment—ah, yes, well, you might expect me to suggest a miniature camera, and this I do without reservation, because by now I don't believe many people will persist in talking small photographic equipment down. Water-front pictures in the city demand a small camera because one often comes across sailors, workers, longshoremen, and the like who definitely object to being photographed. Some of the most successful pictures of this type have been made with a miniature camera equipped with an angle view finder, that old trick-box of candid photography. The angle view finder will be of great value when working along the water-front. You may recall a candid picture of a negro asleep in a discarded baby carriage on a New York City dock along the East River—a candid photo by my friend Dr. William P. Eckes. This picture was printed in the July, 1935, issue of

(Turn to Page 24)

## "PHOTOGRAPHY YEAR BOOK BOOK—1935"

A survey of the world's camera art. Edited by T. Korda, Editor Photography; published by Cosmopolitan Press, Ltd., 48 Fetter Lane, London, E. C. 4, who also publish the monthly "Photography." Price 24/ net. Stiff covers, leather spine. Comprises 464 pages (12x9½-inch) and includes more than 1,700 photographs from 522 contributors, of which 80 are full-page size. Weight 5 lbs.

Main Section: (pictorial and commercial photography) contains 241 pages, with 914 illustrations. Trick Photography: 17 pages of outstanding photographic work in this field, of which 85 examples are given. Scientific and "Spirit" Photography: 37 photographs showing how the camera is aiding the cause of science. Applied Photography: 14 pages demonstrating the use of photography for photo-murals, postage stamps, photo-posters, packaging magazines and newspaper covers, book jackets, showcards and display pieces, etc., and comprising 90 illustrations. Printed Salesmanship: 48 reproductions of photographic brochures, folders, catalogues, etc. The Camera in Advertising: 30 large size photographic illustrations which have appeared in national advertising and 67 pages of reproductions of actual advertisements in which photography has been used, classified by industry. 556 of these are included in the section.

Every kind of photography in this unique volume—pictures which will appeal, for their beauty or their technical interest—to everyone.

There is something for everyone, fifty-five pictures of sport and entertainment; seventy of commercial subjects and industrial scenes; thirty-five of food and confectionery, and so on.

A special section is devoted to "trick" photography, presenting novel and sometimes weird effects obtainable by special methods.

Eighty of the photographs are of full-page size—12x9½ inches.

There are several examples of X-Ray and infra-red work; specimens of photographs taken under the sea.

The presentation of the introduction in four languages—English, French, Spanish and German—is an indication of the book's international scope. Examples are drawn from Britain, America, Japan, Australia, South Africa, France, Germany, Sweden, Austria, Italy, Holland, Spain, etc., etc.

Everyone seriously interested in photography or attracted by beauty should possess the Photography Year Book, obtainable direct from the publishers, price £1.1s post free, or through all booksellers, bookstalls or photographic dealers.



LEICA photo by V. Davison

## HOLD IT!

With Leica you can "stop" the fastest football player in the game. The Leica sees and gets plays that even your eye misses. Take pictures of people as they are—real, natural, genuine. You will never know what grand fun photography can be until you own a Leica.

**Simplicity itself** • "Spin-click-spin" and there you are. Anyone can operate a Leica.

**Inexpensive** • Leica uses 35 mm. film—as low as ½ cent a negative.

**Versatile** • Snapshots, portraits, pictures at night, stage scenes, stereo photographs, aerial photos.

**Model G** • Just out. Greatest range of shutter speeds of any miniature camera—1/1000 of a second to one full second. Modern, stream-line, new chrome finish.

Write for illustrated booklets. Get your copy of "Leica Manual" a new 500-page book on all phases of Leica photography, \$4.00 at all Leica dealers.

# Leica

THE ORIGINAL MINIATURE  
CANDID CAMERA



Model G with  
f:2 Summar  
Speed Lens.

E. LEITZ, INC • DEPT. 84 • 60 EAST 10th STREET, NEW YORK CITY  
Branch Offices in CHICAGO • WASHINGTON • LOS ANGELES • SAN FRANCISCO



## The Practical Design of an Amplifier—

# Motion Picture Sound Recording

CHAPTER XXIII

## May Be Used As Main Recording



AFTER twenty-two chapters of the theory of motion picture sound recording, we come now to three chapters on the practical design of an amplifier that may be used as the main recording amplifier in a film or wax recording system or as the main amplifier in a public address system. Since some of the readers may be

By

CHARLES FELSTEAD,

Associate Editor

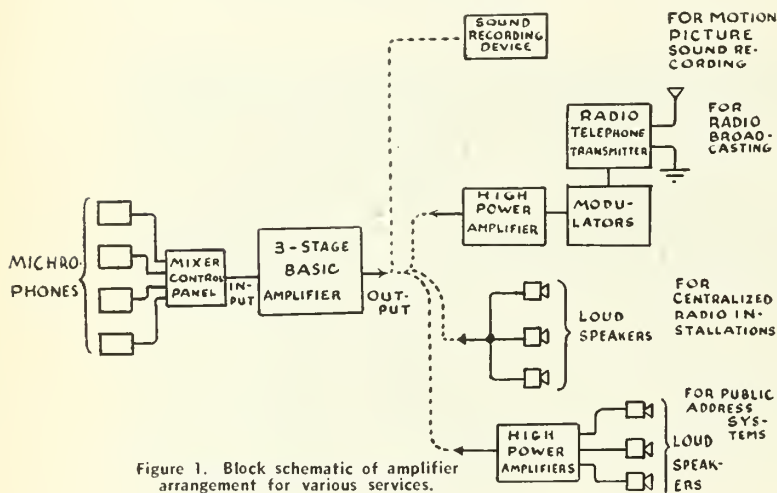


Figure 1. Block schematic of amplifier arrangement for various services.

interested in this latter application, the following chapters will describe an additional high-power amplifier that may be added to this main speech amplifier to provide a public address system that will furnish sound coverage for as many as 5000 people.

### Design for Basic Amplifier

In public address systems, centralized radio installations such as found in hotels and apartment houses, radio broadcast stations, and motion picture sound recording systems there is a basic amplifier that is practically the same for all these varied services. This amplifier is usually a three-stage affair. In the motion picture studio, it is known as the main recording amplifier; in the broadcast station, or broadcast station remote control room, it is called a speech amplifier.

The input of this amplifier is fed from the mixer control panel, or main volume control, which in turn is supplied with sound energy by the microphones. This is clearly illustrated in the block schematic diagram of Figure 1. The arrangement of the circuit up to the output of this basic amplifier is the same for all the mentioned services; but the output connection is dependent upon the use to which the amplifier is put.

In sound recording, the output connects to a recording device—a flickering lamp, a vibrating mirror, a light wave, or a wax cutting head—in radio broadcasting, it connects to the modulators, either directly or through another higher power stage of amplification; and in the centralized radio installation, or in the public address system, it connects, either directly or through another stage of amplification, to the loud speaking horns. The purpose of this basic amplifier is primarily to raise the electrical level of the speech current to a value that will be high enough to operate the recording device, modulators, or loud speakers at normal power.

### Design of the Amplifier

We will start with two assumptions in the design of our amplifier: That it will operate at the input from a double-button carbon microphone or the equivalent, and that its power output will be about ten or fifteen watts. This requirement of a power output in the order of fifteen watts means that we must use tubes of the intermediate power class, such as type 45 or type 2A3, and that they must be used in push-pull, particularly since we require a high degree of fidelity in an amplifier that is to be used for sound recording.

For the input requirement, it is assumed that a high-quality double-button microphone of the Western Electric Type 600-A, or the older Type 387, or the equivalent is used. A microphone

of this type has an output of approximately 0.02 volts across 200 ohms. Since the output of this microphone is fed to the grid of the first amplifier tube through a microphone transformer that has a ratio which is usually 1 to 27, the peak voltage available across the potentiometer (marked Pot in Figure 2) is 0.02x27, or 0.54 volt.

The potential we require for the grids of our type 2A3 tubes in push-pull reaches a maximum of 124 volts, since at a plate potential of 300 volts the grid bias voltage required for each tube is 62 volts and there are two tubes with their grids connected push-pull. This is represented in Figure 2.

So we see that we must increase the input voltage on the grid of the first amplifier tube (0.54 volt) to 124 volts on the grids of the final amplifier tubes. This represents a voltage step-up of 124/0.54, or almost exactly 230, which is the voltage gain that must be provided by the amplifier. A little figuring, using the constants of the different tubes it would be possible to employ for our purpose, produces the result shown in Figure 2.

### The Developed Circuit

Here we see that the first tube in the amplifier is a type 56, which has a voltage gain of approximately 10. Since the grid input voltage to this tube is 0.54 volt, the voltage that appears in its output circuit is 0.54x10, or 5.4 volts. Selecting a single-stage to push-pull transformer that has the proper input and output impedances for the tubes we wish to use and that has the normal ratio of 1 to 3, we secure a voltage for the grids of the tubes in our second stage of amplification that is equal to 5.4x3, or 16.2.

The type 56 tube when operated at a plate voltage of 250

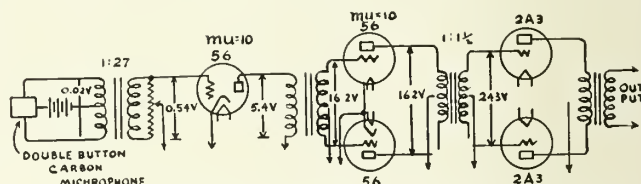


Figure 2. Skeleton diagram of amplifier showing speech voltages.

volts requires a grid bias voltage of 13.5; so, there being two tubes in push-pull, the tubes will stand a total peak grid swing of 2x13.5, or 27 volts. So our calculated grid swing of 16.2 volts is well within the safe limits, and distortion from overloading the grid circuits of these tubes in the second stage is not likely to occur. The voltage gain in these tubes being 10, a speech voltage is built up across their plate circuits that is equal to 16.2x10, or 162 volts.

Now selecting a push-pull-plates to push-pull-grids trans-

(Turn to Page 25)

# M P G

Reg. U. S. Patent Off.

THE MOST TALKED OF FINE GRAIN DEVELOPER ON THE MARKET. IDEAL FOR MINIATURE CAMERA FILM. NO MIXING. ONE QUART SOLUTION GOOD FOR MORE THAN A DOZEN FILMS. FULL INSTRUCTIONS WITH EACH BOTTLE. AT YOUR DEALERS AT \$1.25 A QUART. OR AT

R. J. FITZSIMONS CORP.  
75 FIFTH AVE. (Dept. B) NEW YORK CITY



---

# A Striking Tribute To the Industry

---

. . . is its ability to take swift advantage of new, improved means and materials of production. For instance: Eastman Super X Pan Negative was announced only a few months ago. Now, aside from many special uses, it is being employed in the bulk of feature productions. The reason? Greater speed, plus generally improved photographic quality. . . . You'll want Super X for your next picture, of course.

---

J. E. Brulatour, Inc.

Fort Lee   New York   Chicago   Hollywood

---

# Eastman Announces New Kodak Pocket Range Finder



The Kodak Pocket Range Finder is small, compact, easy to carry, clipped in a vest pocket, or on the kodak retina.

Thoroughly reliable, reasonably priced and as easy to carry as a pencil.

That briefly describes the new Kodak Pocket Range Finder just announced by the Eastman Kodak Company. This new range finder can be used for accurately determining correct distance for any focusing camera and especially valuable when fast lenses are used at wide apertures with the accompanying lack of depth of field.

An exclusive feature of this new finder is a translucent scale visible through the eyepiece, making it possible to ascertain the correct distance while viewing the subject.

A special adapter is supplied for attaching the finder to the Kodak Retina, Eastman's precision built 36-exposure miniature camera.

The Kodak Pocket Range Finder retails at \$7.00 and the adapter for Kodak Retina at 75 cents.

## Wide Angle Shots

By HERBERT ALLER

Joe Rucker, of South Pole fame, left for China (Paramount News) recently.

Howard Anderson is off to Detroit to do an industrial picture for the Wilding Pictures Corp.

Back in town and preparing to hop off for New York, London and Africa, is Merle LaVoy.

Jack Mackenzie seems to be R.K.O.'s busiest cameraman. We wonder what will happen to Jack's golf.

Gus Peterson is now one of the ace cameramen for Republic Pictures. He is positively turning in some great photography.

Frank Blackwell, Pathe Newsreeler, commissioned to write for the December issue of *The International Photographer*.

Covering the Northwest territory with Brother Sankey we find Brother Perryman, of Hearst Metrotone, and Brother Nelson, of Paramount.

Eddie Linden promises us some sensational photography in R.K.O.'s "Last Days of Pompeii." Eddie's capable assistant is Bert Willis.

Lucien Ballard, who just finished "Crime and Punishment" for Columbia, is due to commence photographing one of Columbia's super-special pictures.

We find Merritt Gerstad and Paul Eagler shooting first on "Shoot the Chutes," Eddie Cantor's latest picture, with Bernard Guffey as Eagler's second cameraman.

Jovial Mickey Whalen recently left on a tour that will take him into every state in the union. Mickey is shooting screen tests for one of the companies.

Bobby Doran has just finished two Conway Tearle pictures for Beaumont Productions at International Studios. Bobby deserves much praise for his fine photographic attainments.

Leon Shamroy, after completing two at Columbia and one for Wanger, is now in New York as the cameraman and co-director with the Hecht McArthur Productions, Paramount release.

Invincible and Chesterfield Productions, two of the most successful independent organizations in the motion picture business, utilize the services of that well known cameraman, M. A. Anderson, known to his fellow cameramen as "Andy."

Bob Planck, who finished "Red Salute" and "The Melody Lingers On," with Edward Small Productions, is about to commence shooting an epic making picture entitled "The Last of the Mohicans," the well known story by James Fenimore Cooper.

Geo. Clemens, for many years one of the most dependable second cameramen at Paramount Studios, has been elevated to

the first camera berth at the request of Mae West. Good luck to you, George!

That well known cameraman, Archie Stout, has just finished at Paramount and is once again to start a "Hop Along Cassidy" picture for Harry Sherman Productions. It looks like Archie will not be a sea-going man for some time.

Roman Freulich, famous still cameraman, who has been on the Universal lot for many years, is now writing in that studio at the personal request of Carl Laemmle, Sr. In due time we are sure that Roman's name will appear on numerous pictures under the titles: "Screen Play by Roman Freulich."

The busiest cinematographer at Mascot Studios, Republic Productions, is Ernie Miller, shooting feature after feature with serials in between. Surrounded by Al Levoy, production manager, and Nat Levine, chief in charge of production, as his superiors, Ernie enjoys working for Mascot. With him is to be found Billy Nobles, also a first cameraman; Jack Marta, second cameraman; Bill Bradford, second cameraman; Monte Steadman, competent assistant.

### LA VOY'S SECRET QUEST

Merl La Voy, champion globe trotter of the world, and just back from two years' camera shooting in the Orient, is shown here in heavy marching order enroute to all points North, South, East and West, stopping enroute to Europe, Africa, and probably the South Seas. His picture quest this time is more or less of a secret, and it is to last a long time, judging by the amount of equipment he is loading on his big ship. The International Photographer wishes La Voy and his associates and their expedition unlimited success.





William J. German, vice-president and general manager of J. E. Brulatour, Inc., of New York, arrived recently in Hollywood to make a survey of the movie situation and to sojourn with the popular and efficient Brulatour representative on the West Coast, Edward (Eddie) O. Blackburn.

Mr. German is delighted with the evidences of great production activity in the studios, with the local business of the Brulatour organization and with the operations of the Eastman Research Laboratory under the able direction of Emery Huse.

Mr. German is the kind of man the late Will Rogers described as the sort he liked to have around, and he is thoroughly "sold" on Hollywood and its good people.

There is a permanent welcome awaiting "Bill" German whenever he wants to visit Movie Town, and The International Photographer is not the last to greet him.



William (Bill) German

# Recent Photograph and Sound Patents

By ROBERT FULWIDER, *Registered Patent Attorney*

2,012,995—Stereoscopic Motion Picture. H. E. Ives, assignor to Bell Tel. Labs., New York.

2,013,020—Motion Picture Machine Control. Henry G. Weiss, assignor to Automatic Control Turnover Co., Cincinnati.

2,013,021—Automatic Change-over Device. Henry G. Weiss, assignor to Automatic Control Turnover Co., Cincinnati.

2,013,109—Photophonograph. Ellwood W. Reynolds, assignor to R. C. A.

2,013,116—Photographic Matrix. Leonard T. Troland, assignor to Technicolor, Inc.

2,013,159—Process of Chemically Transforming Photographic Image. Frederick Lieng, Dresden, Germany.

2,013,178—Projection Apparatus. J. Eggert and Gerd Heymer, assignors to I. G. Farbenindustrie, Germany.

2,013,350—Motion Picture Apparatus. Jacob F. Leventhal, New York.

2,013,362—Automatic Diaphragm. Odon Riszendorfer, Budapest, Hungary.

2,013,363—Photographic Apparatus. Odon Riszendorfer, Budapest, Hungary.

2,013,661—Motion Picture Apparatus. Jacob Leventhal, New York.

2,013,842—Apparatus for Stereoscopic Pictures. Lawrence F. Savage, London, England.

2,013,886—Color Separation for Composite Motion Picture. Fred Jackman, assignor to Warner Bros. Pictures, N. Y.

2,014,076—Adjustable Socket for Projection Lamps. Howard Wellman, assignor to Eastman Kodak Co.

2,014,099—Projector Film Gate. W. H. Bauch, assignor to Cornelius Engineering Co., Indianapolis.

2,014,202—Film Handling Apparatus. W. D. Foster and F. D. Sweet, assignors to Kinatome Patents Corp., New York.

2,014,435—Composite Picture. Fred Jackman, assignor to Warner Bros. Pictures Inc., New York.

2,014,495—Sound Recording. Leo Goldhammer, assignor to Agfa Ansco Corp., Binghamton, New York.

2,014,537—Sound Reproducing Device. Milton H. Page, assignor to Trutone Audifilm Corp., Chicago, Ill.

2,014,547—Photographically Sensitive Element. George S. Babcock, assignor to Eastman Kodak Co., Rochester, N. Y.

2,014,606—Three-Color Film and Process. Donald K. Allison, Beverly Hills, Calif.

2,014,767—Device for Reproducing Sound from Film Records. Delton R. Kautz, Norwood, Ohio.

2,015,272—Composite Motion Pictures. Fred Jackman, assignor to Warner Bros. Pictures, Inc.

2,015,344—Picture and Sound Reproduction. Wilho Kosken, Richmond Hill, N. Y.

2,015,346—Continuous Film Processing Apparatus. Charles L. Lootens, assignor to Cinema Patents Co. Inc., N. Y.

2,015,637—Cinematographic Apparatus (Film Gate). Clinton R. Hanna, assignor to Westinghouse Electric Co., Penn.

## NEW LENSES ANNOUNCED

The already complete battery of lenses for the Leica camera is now being added to, according to E. Leitz, Inc., 60 East 10th St., New York City. Three new superb lenses have recently been made available for use on the Leica—an extremely wide-angle, a new special soft-focus portrait, and an extremely long-focus telephoto.

The Hektor f:6.3, 28mm. lens appeals to those workers who require an extremely wide-angle objective which at the same time embodies certain fundamental optical characteristics which are not always to be found in lenses of this type.

The Thambar f:2.2, 90mm. lens is of revolutionary design, producing a plasticity and optical softness not produced in any other way. For portraits and pictorial work it is ideal, its speed making it doubly valuable. An auxiliary glass "central stop" controls the degree of softness. When stopped down to f:9 or more, the Thambar reverts automatically into a sharp-cutting lens, thus it is both a soft-focus and sharp lens at will.

The Telyt f:4.5, 200mm. lens is a true telephoto lens which is used in conjunction with a mirror reflex focusing device. Here is the lens to pull in distant objects, producing them as close-ups on the negative. The visual focusing device, equipped with two special magnifiers, assures critical focusing with the greatest ease.

These three new lenses, added to the battery of Leica lenses, make the Leica the most versatile and complete photographic equipment available. All lenses (excepting the Telyt, which focuses through the special mirror reflex device) coupled automatically with the famous "Autofocal" built-in range finder, making failures due to faulty focusing impossible.

The new Leica lens booklet, "The Interchangeable Leica Lenses" (booklet 1243) is now available on request. It gives complete details about each of the thirteen Leica lenses now on the market. Just drop a card or letter to E. Leitz, Inc., 60 East 10th St., New York City, and your copy will be promptly sent to you.

# The Use of Mazda Lamps For Color Photography

By ROBERT G. LINDERMAN,

*Illuminating Engineer, South Pacific Division, Incandescent Lamp Department,  
General Electric Company*



THE advent of color photography, by its more critical requirements, has emphasized the need for a more careful selection of light sources. Although Mazda lamps which were especially designed for motion picture photography were operated at a color temperature best suited for use with panchromatic film, yet many Mazda lamps from the general service line were introduced into this service so that in actual practice a wide variation in filament color temperatures resulted. Today it is regular practice to use lamps operated at from 3000° K to 3440° K, which of course means a wide variation in the color quality of light emitted from the various units.

Constant color quality of light regardless of its intensity would be highly desirable for black and white photography, yet since there is a wide latitude in panchromatic film, it has not been necessary to insist on a given color quality. Experiments are now being conducted toward the end that greater knowledge will be had which will be helpful in determining just what practice should be used in the future for black and white photography. In meeting the needs of color photography, it becomes absolutely essential that light sources either emit a constant color quality, or are filtered to conform to the need of the particular process being used.

To meet this need, Mazda lamps will be made available which when operated at rated voltage will have a filament color temperature of approximately 3275° K. This temperature is found to be satisfactory for one color process and also conforms closely to the operating temperature of especially designed Mazda lamps now used for black and white photography. Considerable information has been gathered through tests run in conjunction with the Technicolor Corporation which would meet the requirements of their three color process so as to combine the obvious advantages of incandescent equipment such as:

- (a) Reduced electrical labor costs. Fewer people on the set.
- (b) Better quality of photography.
- (c) Improved working conditions on the sets. Better morale.
- (d) Greater flexibility of light control. Dolly shots, Dimming effects.
- (e) Less time required in rigging and striking sets. Faster schedules.
- (f) Reduced equipment maintenance.

## Set Temperatures

Owing to the higher light intensities required for color motion picture photography, fears have been expressed that the use of Mazda lamps might result in discomfort to the personnel. The apparent lesser amount of infra-red radiation of other illuminants has been cited as one of the reasons why it was necessary to employ this source when extreme intensities are necessary. The energy entering an incandescent lamp of the usual studio types (21.0 LPW) is expended as follows:

- 20% Heat-gas convection
- 5% Heat losses in supports and lead wires
- 64% Radiant heat
- 11% Light

In the case of lamps operating at 33.5 lumens per watt, as recommended for Technicolor photography, these figures become:

- 20% Heat-gas convection
- 5% Heat losses in supports and lead wires
- 57.3% Radiant heat
- 17.7% Light

The heat losses by gas convection and in the lead wires and supports are of no importance since they affect only the lamp bulb and adjacent parts. Of the radiant energy reaching the actors, 85.3% (in the case of lamps used for black and white photography) is in the infra-red section. This is reduced to 76.5% for the 33.5 LPW lamps—an improvement. The Corning No. 570 filter, while not a true heat filter of the Aklo type, does possess a moderate amount of infra-red absorption; hence will reduce the 76.5% to possibly 65% or even 60%. In a paper presented at the 1935 Spring Convention of the Society of Motion Picture Engineers by F. T. Bowditch, entitled, "Radiant Energy Delivered on Motion Picture Sets from Carbon Arc Studio Light Sources," the division of energy between photographic and infra-red is given for several types of studio arcs. In general, these data show 30-35% photographic energy, 30-35% near infra-red (7000-14000Å) and 30-35% in the far infra-red region (14000-50000Å), or 60-70% in the entire infra-red section, which is quite comparable to that of the high efficiency incandescent lamp. The comments of the actors and others who stood in front of first one source, and then the other, at approximately the same intensity during the test, mentioned earlier in this report, were

that the "inky" light was actually cooler.

## Lamps and Lamp Costs

A general lighting type of lamp is the 2000 watt Movieflood which has been designed to operate at 33.5 lumens per watt at label volts. It is provided with the regular PS-52 bulb and mogul screw base, permitting its use in any lighting equipment designed for this bulb and base, although the rifle type of unit is recommended because of its greater light utilization. Special overhead suspension devices are available which allow the rifle to be placed above the set, duplicating the lighting effect of the sun.

Since the 5000 watt and the 10000 watt lamps already operate at 29 lumens per watt, to increase their efficiency to 33.5 lumens per watt requires only a slight overvoltage of the lamp, most easily obtained by operating 105 volt lamps at 115 volts. This arrangement does away with the necessity of creating a new special type lamp. Lamps operating at 33.5 lumens per watt have a filament temperature of approximately 3450° K.

The 2000 watt Movieflood lamp lists at \$5.25 or about \$3.15 net to the studios; its life averages 15 hours. Thus lamp renewal expense would be about 21 cents per hour or 42 cents per hour on the basis of two lamps for each broadside. This is quite in line with renewal costs of other illuminants.

The 5000 watt lamp costs the studios approximately \$24.00 and the 10000 watt lamp, \$60.00. The life at 33.5 lumens per watt will average 50 hours, making the cost of the 5 Kw. 48 cents and the 10 Kw. \$1.20 per hour. Considering wastage of high intensity positives and negatives, as well as consumption by burning, lamp renewal costs in the case of the 5 Kw. lamps are comparable to other illuminants. Ten kilowatt lamp renewal cost will run somewhat higher. When the time gained for the entire company, as a result of freedom from retrimming delays, it is considered along with the renewal item, the savings to the producer are tangible and worth while.

## Operating Considerations

In order to derive the full benefit from incandescent lighting, and insure maintenance of correct light quality, lamps should be operated at 115 volts at the socket. It is suggested that an operator, responsible for the cameramen, be provided with a voltmeter and the authority to see that the correct voltage is maintained at the lamps. The lamps recommended for Technicolor photography incorporate a cleaning powder which is effective in maintaining almost initial light output throughout the life of the lamp. The above mentioned "lighting men" should be given the additional responsibility of seeing that the lamps are cleaned from time to time, preferably after hours. The Movieflood lamps should be cleaned approximately at five hour burning intervals and the 5 and 10 Kw. lamps, approximately 15 hours intervals. Preliminary tests have been run and more tests are contemplated to ascertain the amount of voltage fluctuation which will be permissible in practice.

It is fairly common practice to burn the incandescent lamp for much longer periods than is actually necessary, a tendency that has grown up because they provide a good work light and the electrical staffs are not worried about retrimming. It could well be another duty of the lighting supervisor to see that lamps are burned no longer than necessary—at least at full voltage. It might be a very good plan to make available at the set a lower voltage, at which the lamps may be operated for "lining up," general illumination, etc. Then bring them up to full voltage when ready to photograph. Discussion with studio electrical chiefs has brought out that this is quite feasible either by providing a lower voltage, say 90 volts on the duplicate bus at the substation, or assigning one generator to the color set and adjusting its voltage upon signal, by field control.

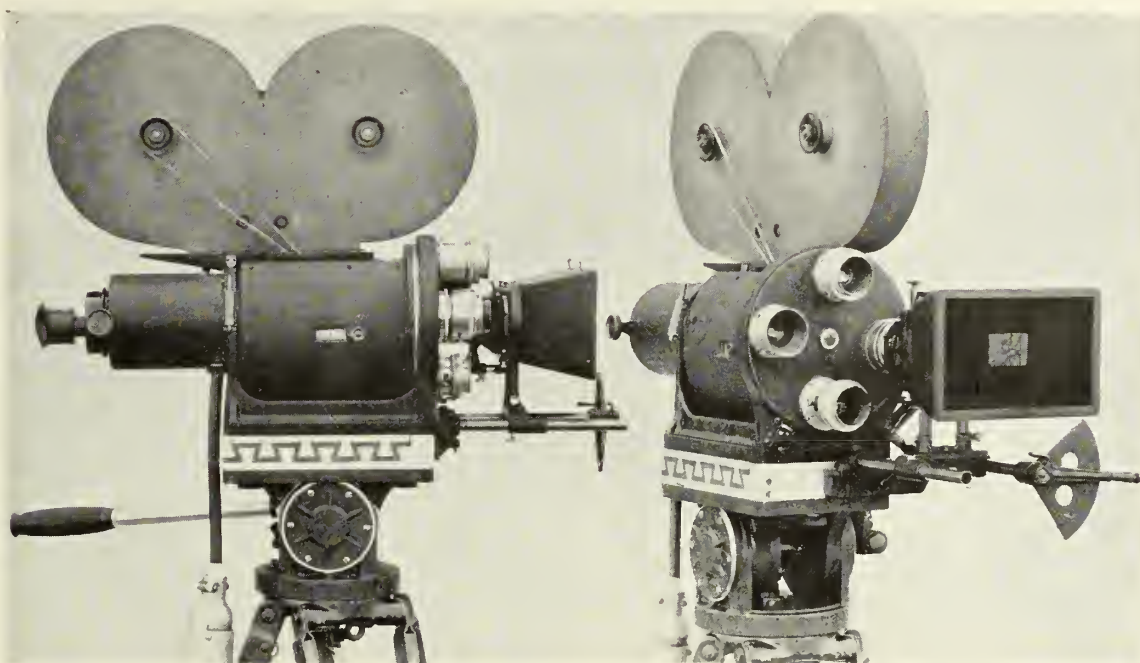
Experience may very likely show that the useful life of lamps "saved" in this manner will not be materially less than with the present continuous burning practice.

The new Fresnel lens type of spotlamps which has been made available since our preliminary tests were run, offer a simple solution for the problem of filters since the diameter of the filter on these equipments is much smaller than that which will be necessary in the present 18" and 24" sunspot units. Actual photographic tests which have been made indicate that it is possible to make color pictures either entirely with incandescent lamps operated at the proper temperature and proper filter, or with these equipments mixed with other equipments.

In practice it will be necessary to observe closely the operating economies of the various equipments which will determine the ultimate percentage of incandescent equipments which are practical on the set.



# THE NEW SILENT MOVIE CAMERA



Perfection of a completely silent motion picture camera—the objective of research by the entire film industry since the introduction of sound—was announced recently by Darryl F. Zanuck, vice-president in charge of production for 20th Century-Fox Film Corporation.

Revolutionary in design and principle, the new camera was planned, constructed and patented by technicians at 20th Century-Fox Studio who have spent three and a half years on the task.

Exhaustive tests have demonstrated the feasibility of the instrument and it has been assigned to its first use in photographing "Show Them No Mercy," a Zanuck anti-crime production for 20th Century-Fox featuring Rochelle Hudson, Cesar Romero and Bruce Cabot.

Small, compact and with features which provide for pictures of greater distinctness, the new camera completely eliminates the bulky "blimp" which weighed down the old-style sound camera. The new camera, weighing only 82 pounds, can be used on an ordinary wooden tripod, which gives it an extreme advantage in mobility and portability over the 390 pounds of the blimp which required a heavy steel "dolly" or carriage to support it.

As radical in appearance as it is in internal design, the new camera is barrel-shaped. With the motor mounted in the rear, a direct driveshaft running through the horizontal axis of the camera eliminates more than fifty per cent of the gearing in the old-style instrument. This in itself accounts for a great reduction in noise of operation, according to Grover Laube, head of the studio's cinetech department and chief designer of the camera.

At only two points are gears necessary, and they are alter-

nated, one of steel and one of fibroid, to further cut down noise. What little noise remains in the mechanism is completely silenced by the aluminum body, which was constructed along new insulation principles.

Laube declared the insulation experience gained from construction of the camera may be applied to other mechanical fields where engineers wish to prevent the transfer of frequency motion from one mass to another.

In addition to the advantage of silence, the new camera provides for "smoother" pictures because the shutter, operated at an angle of 200 degrees, is open for a greater length of time than the 160 degree shutter of the old camera. This, with the fact the film is in complete repose during the exposure, eliminates more of the "jerk" or lapse between pictures, and provides images of distinct clarity.

The monitoring, or view-finding, feature of the new camera also represents an improvement in that it permits the operator to check on the focus of his instrument while the camera is in operation. It furthermore provides accurate focusing for distances from two feet to infinity.

Chief credit for the new camera was given by Zanuck to Laube. The latter's cinetech staff included C. M. Miller, R. C. Stevens and E. A. Kaufman, all of whom contributed to design and construction, along with G. L. Fisher, head of the 20th Century-Fox camera department.

The honor of first using the noiseless camera was given to Bert Glennon, cameraman on "Show Them No Mercy," because Glennon, as a member of the committee on silent cameras of the Academy of Motion Picture Arts and Sciences, had done pioneering work in this line.

## DUTO AUXILIARY LENS

There are soft pictures and there are SOFT pictures! Softness due to incorrect focusing is distinctly unpleasant. In the properly softened photograph detail is not obliterated but merely artistically and delicately diffused. There is a certain quality of softness, akin to the effect seen by the eye when viewing an object against the light when it is fringed by a transparent halo, which seems to make the picture more alive somehow, and certainly more beautiful.

All of us have seen and been fascinated by this effect, when rays of dancing light seemed to emanate from the glittering surface of the object. While marvelous to behold, the reproduction of this effect photographically, without undue harshness, has been attended to date by no small amount of difficulty.

Many and various have been the methods and devices by which photographers have attempted, successfully only at rare intervals, to re-create this intriguing phenomenon in a photograph. Diffusing screens of cloth and grooved glass discs of all sorts have been tried and generally discarded, mainly because of the lack of control over the amount of diffusion introduced. It has been found that the amount of diffusion required was inversely proportional to the brilliance and contrast of the lighting; the stronger the lighting, the more delicate must be the diffusion.

Up to now the only way to control the amount of diffusion has been to use a comparatively expensive and definitely soft-focus lens. In this modern day, when in the interests of simplicity most amateur cameras are not provided with means for easy interchangeability of lenses, the use of such a lens is not easily feasible.

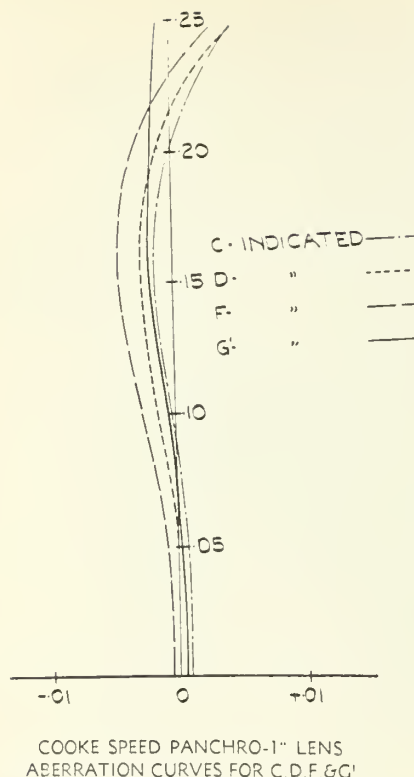
However, with the advent of the Duto-Auxiliary Lenses, already extremely popular in Europe, the photographic amateur has no further cause for worry. These are supplementary lenses, made in two powers, No. 0 and No. 1, each especially ground to give the most pleasing effect with stronger and weaker lightings. An amazing fact, noticed by European workers, is that, as in the case of the true soft-focus lens, the depth of field is wonderfully increased. Finally, and of no less importance, is the fact that negatives obtained through the use of these lenses have the same enlarging possibilities as those taken through the undisturbed camera lens.

Already available for the Rolleiflex, the Duto Auxiliary Lenses will shortly be procurable for all the most popular cameras. They are distributed by Burleigh Brooks, 127 West 42nd Street, New York City, and their introduction scores another beat for this enterprising concern.

Please mention The International Photographer when corresponding with advertisers.

# Historical Background of the Speed Panchro Lens

By R. FAWN MITCHELL\*



\* Manager  
 Technical Service,  
 Bell & Howell Co.,  
 Chicago.

THE CINEMATOGRAPHER is undoubtedly more critical in his judgment of the qualities of any photographic lens than is any other worker. The very nature of his work compels him to be extremely careful in the selection of the lens for his work. For instance, when we realize that the area of each individual frame of motion picture film is less than one-half of a square inch, we can readily perceive the enormous magnification involved in showing this on a theatre screen. For instance, with a thirty-foot screen the magnification in area is 16,250 times. Analyzing the matter further, we have looked at it this way.

Using the standard two-inch lens on the average scene, the camera will be somewhere about twenty feet away from the actors. Figuring that an actor's face is approximately six inches in diameter, this means that the face is registered on the film within an area of 1/20-inch diameter. Going further and considering that the features, say for instance the eye, being about one inch in size, would occupy an area of only 1/120-inch in diameter. We must realize that the individual grains of the motion picture film, while very small, do have a discreet size. We can usually figure that they are not very much smaller than .001-inch diameter. Therefore, when we figure that an actor's eye occupies a portion of the film only 1/120 inch in diameter, we can see that this image is made up of approximately ten or so grains of developed silver.

These facts and figures are offered to dramatize the striking and critical refinements of the motion picture lens which must resolve the finest detail as sharply as can be resolved on the film used by the cameraman, so that when the print is finally projected on the screen, the individual features, nuances of expression, will be correctly delineated.

Not only does the motion picture lens do this, but it is corrected to limits even beyond the resolution of the best films available at this date, remarkable as they are. These lenses are also corrected for color photography so that the cinematographer who has such modern lenses at his disposal is equipped to handle any new developments that may be brought out and to get the utmost out of them from an optical (or chromatic) standpoint. The following brief historical resume of the development of these lenses is offered to show some of the complex research investigations which have been made by various optical geniuses and upon whose work and by whose work it has been possible for the cameramen to have at their disposal such remarkable lenses as they are now using.

Basically, the modern camera lens is an elaboration of the ordinary magnifying glass, although it is as far ahead of the magnifying glass as the modern airplane is beyond the kite.

Most of the readers of the "International Photographer" are familiar with the conventional optics as outlined in the regular physics books, but it will not harm to list the various aberrations of a plain lens, which have to be corrected by combining two or more lenses of different characteristics. It is this knack of being

able to combine different optical glasses in different combinations of curves, spacing, etc., that marks the difference of a photographic lens from a magnifying glass.

First of all, the lens designer is handicapped in that he has to use spherical surfaces on his lens with the result that spherical aberrations have to be corrected by various expedients. Spherical aberration means that rays from the margin of a lens do not focus at the same place as those passing through the central portion or intermediate portions of the lens. If it were possible to use non-spherical curves on a commercial basis, many of these problems would be simplified. Unfortunately, however, the generation of parabolic curves does not lend itself to production methods, as it is more or less essentially a skillful hand job. Spherical curves, on the other hand, can be made with extreme accuracy by machine under regular production conditions.

The second major trouble facing the lens designer is that of chromatic aberrations, which means that different colors focus at different positions along the axis. Most cinematographers are able to appreciate the importance of this correction because within recent years they have had to scrap a lot of their old lenses to use the new type lenses corrected for the combination of panchromatic film and incandescent lighting wherefor the combination of panchromatic film and incandescent lighting wherein the lens correction has been arranged so as to focus the red rays at the same position as the blue rays which will be enlarged upon at a later point in the article.

The third principal aberration is distortion, which, as the name implies, means that an ordinary lens tends to focus straight lines as curves, especially at the edge of the picture.

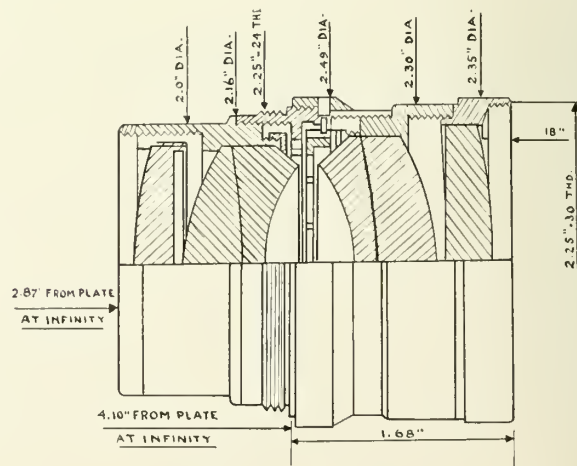
Closely allied to distortion is curvature of the field, which means that the lens may focus the center of the image sharply on the center of the frame, but the edges would be out of focus. If the film or lens was moved forward or backward to bring the edges in focus, the center would be out of focus. As long as film has to be located flatly at the aperture, the importance of this correction is obvious.

Beyond these major corrections, there are additional errors which have to be compensated for in order to get highly corrected lenses of large aperture. Historically, as will be outlined further, lenses of satisfactory correction of the first four aberrations were developed that were limited to speeds of approximately F8 or F7. It was only upon the introduction of new optical glasses by Abbe & Schott and Jena, when it became possible to handle the correction of astigmatism and other complex corrections.

Astigmatism, as the name implies, describes the effect of lenses upon rays coming from a point away from the axis. In other words, the image of a cross located in the edge of the field would be focused by an uncorrected lens as either a horizontal line sharply with a vertical line out of focus, or vice versa.

Somewhat similar to astigmatism is the trouble called coma. In other words, the image at a point located near the edge of the field would be focused as a spot with a tail of lesser density almost identical in appearance to a comet. Hence the name.

A still further difficulty that has to be corrected in a modern



F2 Cooke Speed Panchro Lens



high speed lens is flare, which means that the curvature of the various glasses and their refractive surfaces must be arranged so that excessive internal reflections would not occur at these various surfaces in a manner that they may accumulate and

meniscus lens. In other words, the stop was located approximately at the center of a circle of which the meniscus lens formed part of the circumference. This is the form of lens used the world over for hand cameras of the Brownie type, combining quite a

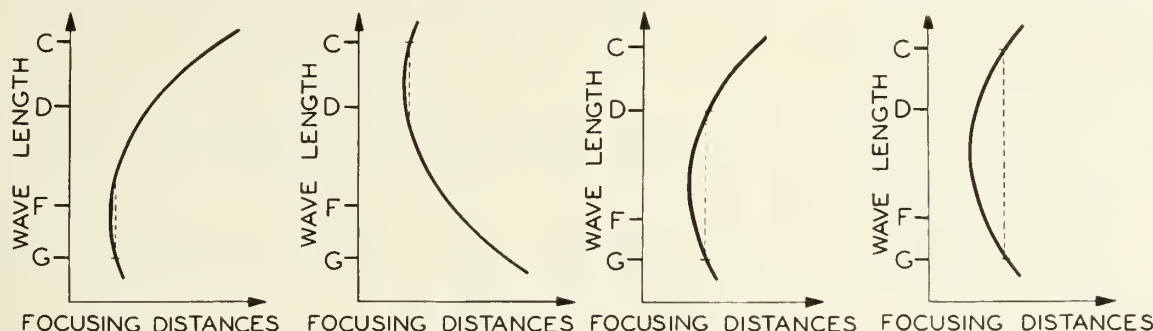


FIG. 1 and 2—Wave lengths brought to coincide on identical focal plane for a telescope (Fig. 1) for visual observation (Fig. 2) for photographic purposes.

FIG. 3—Wave lengths brought to coincide on identical focal plane for photographic lenses prior to the extensive use of panchromatic film.

FIG. 4—Wave lengths brought to coincide on identical focal plane for modern photographic lenses adapted for daylight, arc or incandescent lamp illumination and for regular ortho or panchromatic films.

eventually pass through the diaphragm opening, causing the effect so well known. Flare can, however, occur with the best of lenses if an unshielded light of sufficient intensity shines directly into the glass. This is why it is necessary to use sunshades on lenses.

The last requirement normally considered by the lens designer is the question of equal illumination. Which means that a lens has to be designed to avoid concentration of illumination at the center of the image, which would give a negative with a "hot spot" in the center of the picture.

The modern lens designer usually classifies lens aberrations under the readings of "Monochromatic" and "Chromatic" aberrations. The monochromatic aberrations are:

- (1) Spherical aberration.
- (2) Coma.
- (3) Astigmatism.
- (4) Curvature.
- (5) Distortion.

And (6) the longitudinal and (7) the transverse aberrations are the two types of color correction that must be incorporated in the modern lens. It is interesting to note the difference between this classification as compared to the historical sequence in which they were overcome—we will, of course, maintain the historical sequence in this article.

Strictly speaking for a theoretically perfect lens, there are in addition to the above eight corrections, fourteen tertiary aberrations which should be taken care of. Fortunately, however, these are of relatively small significance and only a few of them are really considered by the designer. They become of increasing importance with color photography and lenses of large aperture, especially in the longer focal lengths.

With the foregoing summary of the various aberrations of the simple glass element with which the lens designer has to start and nullify by using different glasses, etc., we are now in a position to review the historical background outlining the general methods by which the various difficulties were overcome one by one.

Peculiarly enough, the first step was the discovery by Chester Moore-Hall in 1733 and independently by Dolland in 1757, that very good correction for chromatic aberration could be obtained by combining a double-convex collective lens of crown glass with plano-concave dispersion lens of flint glass. They also discovered that, by the same means, it was possible to correct the so-called spherical aberration of the single lens so that this first step, by combining glasses of different characteristics really formed the nucleus from which all subsequent developments have been worked out. The principal difference between the two types of glass is that crown glass has a comparatively low refractive index and a relatively small difference of index for red and blue. On the other hand, flint glass has a relatively high refractive index and a relatively large difference between the indices for red and blue. Of course, a large number of different types of glasses are now available, but fundamentally the difference in characteristics known under the name of anomalous dispersion is what makes the combination work.

The next step was made in 1830 by Lister, the father of Lord Lister, who constructed microscope objectives by using two achromats or doublets with the flint glasses facing the object and spaced apart so that each doublet corrects the coma of the other one.

The next step was that made by Wollaston, who discovered that distortion and astigmatism could be corrected quite effectively by placing the diaphragm stop at the correct distance from a

satisfactory correction up to aperture of F16 or F11. However, the correction for curvature of field is limited and the coma is relatively serious.

The next development was the Petzval type of portrait lens, which was the father of many modern lenses, particularly projection lenses, which essentially consist of a cemented doublet on one side of the diaphragm and an air separation doublet on the other side of the diaphragm. A cemented doublet is of course an achromat placed from the diaphragm correctly to correct astigmatism. The separated lenses on the other side, however, were separately corrected for spherical and chromatic aberrations and had an error of coma equal in opposite to that of the cemented doublet so that coma was cancelled out in the complete lens system. This increased the aperture to F3 and gave very good correction for coma and astigmatism, but still had an error of curvature of field and accordingly a very narrow angle of view (possibly 15°).

In some respects similar to the conception of the Petzval type is the rapid rectilinear which employed cemented doublets, placed on either side of the diaphragm, each doublet being an exact replica of the other and spaced equally so as to cancel out coma and astigmatism. The design of the rapid-rectilinear, however, involves the use of lenses with very deep curves. This in conjunction with the small stop distance determined by the coma gave a field of approximately 45°, but limited the aperture to F8. Another fault of the rapid-rectilinear was that it could not have freedom from astigmatism and a flat field at the same time. Usually it was designed with a flat field (hence the name rectilinear) but had an error of astigmatism.

In 1827 and 1840, Airy and Petzval independently worked out the requirements for flattening the field, at the same time correcting the astigmatism. In 1888, Abbe and Schott produced glasses of the necessary properties, so that the first real anastigmat lens followed soon after. This first anastigmat lens consisted of two achromatic doublets using the new barium crown glass of high refractive index for the inner glasses. This combination of glasses corrected the flatness of field; the astigmatism and coma were corrected by suitably spacing the stops with relation to the lens members. Unfortunately, this lens could not be corrected for spherical aberration so the aperture was limited to F16.

This, however, was overcome in 1890 by Zeiss, who thus brought out the first really practical anastigmat, the aperture of which was F7.5. The manner in which this lens was worked out was that Zeiss combined an achromatic doublet in front made of the older glasses correcting for spherical aberration, and a doublet in the rear made of new glasses to flatten the field.

With the series of new glasses being brought out by various glass manufacturers, various lens makers developed all kinds of lenses, some of them using up to eight and ten glass elements cemented together four or five at a time. In this respect the development of lens design followed that of the early motor car and many other things where one little improvement was added at a time until the final job was complex and cumbersome.

During the height of this complexity, Dennis Taylor brought out the famous simplified triplet lens, in which he introduced a totally new conception as to how the various aberrations could be corrected without separately correcting for each aberration and adding elements for correcting other aberrations step by step.

Dennis Taylor began by considering a collective and dispersive lens of equal or approximately equal power, and spaced apart so that they had a combined collective power to form a real image. Under such an arrangement the Airy-Petzval sum, indicating the

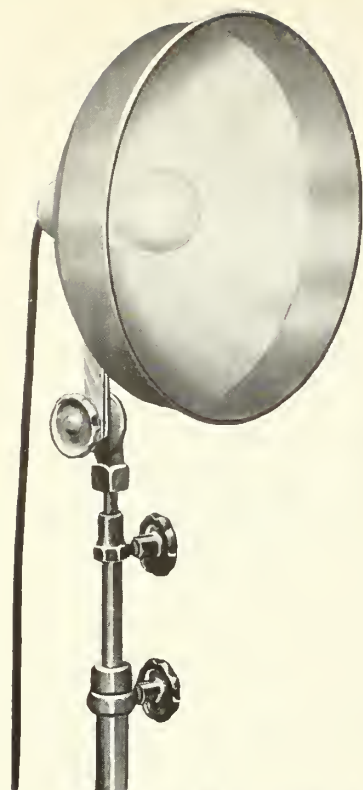
(Turn to Page 27)

# REEVES-LITE

★  
A High Efficiency Professional Light for Both  
Amateurs and Professionals.

★  
Designed by Hollywood Lighting Experts for Use  
with Photoflood Bulbs.

## ★ FLOOD OR SPOT LIGHTING



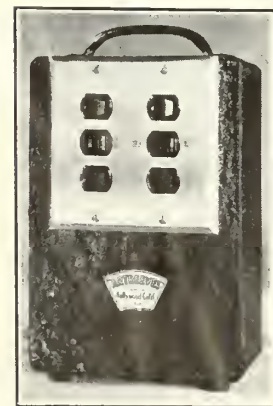
### Used By Leading Producers

First used by Paramount and Hearst Metrotone News, **REEVES-LITES** are now used by all newsreels. Adapted by leading industrial film companies, such as Castle Films, F. K. Rockett Co., Metropolitan Industrial Pictures, etc.

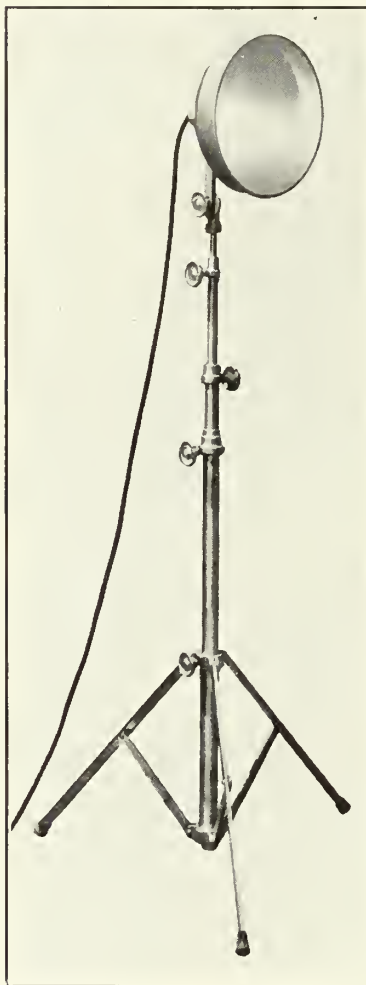
Handicapped by shortage of current, these lights made possible the shooting of many scenes of "TARZAN AND THE GREEN GODDESS" in the wilds of Guatemala.

Have you ever tried to light up a huge cellar where, as the saying goes, you couldn't fog a nega-

tive? Or the interior of a submarine, cramped, with intricate machinery, full of dark corners and reflecting surfaces? Have you ever tried to throw enough light into such places to make it possible to shoot at a 1/50 of a second and get negatives of full gradation and plenty of details, without the use of numerous high powered lights and scores of assistants?



**REEVES-LITES**, versatile, featherweight, installed anywhere, solve at once such problems. **REEVES-LITES** will really illuminate any subject correctly from all angles, no matter how cramped, how re-



stricted the working space, or how intense the darkness that must be turned into photographic illumination.

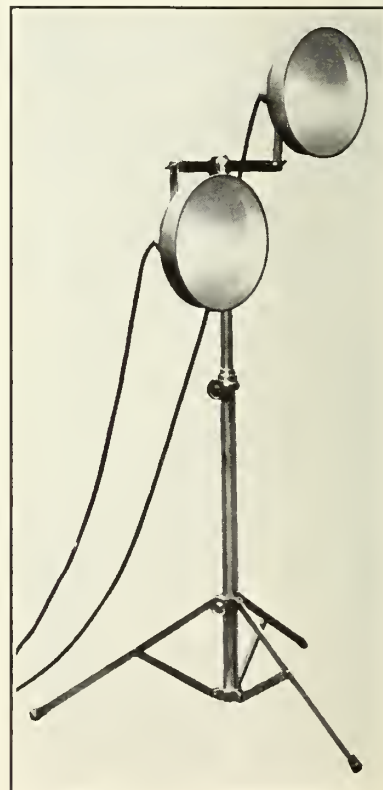
The exceptional reflecting qualities of polished aluminum are utilized to the best advantage, and full use is made of the metal's superiority over plated reflecting surfaces. Plated surfaces will scatter light and are unsuitable for color photography. Aluminum gives a wider range of color spectrum and tends to "bunch" light more evenly and more usefully.

A perfectly calculated curvature of the reflecting surface completes the high efficiency of the light, giving the highest amount of illumination per pound and per square inch.

The reflecting surface of the **REEVES-LITE** is polished by a special process, not to be confused with the ordinary type of polished alumi-

num. The **REEVES-LITE** represents the best that quality can offer in every detail of construction.

**REEVES - LITES** present the best possible ratio of illumination to weight and displacement, approximating the ideal condition.





leys, on murky shadows, boosting the fading evening light and taking advantage of every minute of daytime, **REEVES-LITES**, plugged to sets of "B" batteries, enormously facilitate the task of the photographer. Newsreelmen and newspaper photographers find the **REEVES-LITES** of invaluable assistance in getting their "must" pictures. Impromptu jobs present no problems with the aid of these lights.

The **REEVES-LITE** and Giant stand has a professional appearance. The stand is equipped with rubber feet, making it possible to work on polished floors.

A HI-LO dimmer is also available for economy in bulb wear while setting up. This dimmer is presented in an attractive metal box, and has four outlets, with a potential output of eight **REEVES-LITES**.

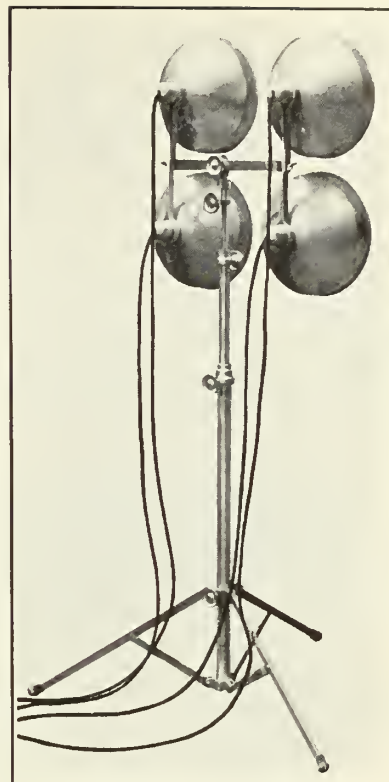
**REEVES-LITES** weigh only 2 lbs., including 20-foot rubber cord, plug and bracket. The Giant Stand telescopes from 4 to 11 feet, placing the **REEVES-LITE** 12 feet above the ground when fully extended. This stand holds either one, two or four lights yet weighs only 8 lbs. It is made of expensive duraluminum and aluminum, insuring rigidity and long life.

The **REEVES-LITE** may be instantly adjusted to any vertical angle, when mounted on the Giant Stand, whether mounted singly or in multiple. In the latter case each lamp may be set independently of the others.

**FLOOD LIGHTING** is obtained

by using the large, Opal Photoflood Bulb of the popular long life type, now available everywhere. **SPOT LIGHTING** requires the use of the Standard Photoflood Bulb.

A great asset to the Photographer, who does not run on a Hollywood studio budget, is the economy of the **REEVES-LITES**. Only 2½ amperes are drawn by each light. About ten lamps, sufficient for most purposes, may be plugged in any ordinary socket or outlet at a minimum cost.



**REEVES-LITE**, with 20-foot rubber cord, plug

and bracket - - - - - \$ 5.00

Giant Dural Stand, complete - - - - - 17.50

Cross-bar, with swivel mounting - - - - - 2.50

HI-LO Dimmer, with 4 outlets - - - - - 20.00

Prices Are F. O. B. Hollywood

Code Word

LAMA

DURAL

CROBA

HILOR

Shipping weights: Lamp, 4 lbs. Stand, 10 lbs. Dimmer, 12 lbs.

Diameter of **REEVES-LITE** across bell, 12 inches. Depth, 8 inches.

Hollywood  
**MOTION PICTURE EQUIPMENT CO. LTD.**  
645 NORTH MARTEL AVE. CABLE ADDRESS ARTREEVES  
HOLLYWOOD, CALIFORNIA, U.S.A.

Please mention The International Photographer when corresponding with advertisers.

# The Charge of the Camera Brigade or Trespassing on the Stronghold of the Storm-Gods

By CHALMER D. SINKEY

**N**ISQUALLY GLACIER grinds a tortuous, relentless course down the western slope of Mt. Rainier. Each year thousands of tourists pause to meditate upon this aged bed of ice that travels in its sleep at the rate of ten inches a day. To the multitudes who view its grandeur, Nisqually Glacier has varied reactions; the casual passer-by sees its muddy face emerging eleven thousand feet down from the summit of eternal snows. He shrugs with dis-

And this fact accounts for the charge of the Camera Brigade. Fox Movietone News wanted those secrets. Moreover, they wanted them recorded with good equipment; long lenses that would bring distant formations of interest into camera range; filters that would soften the blazing glare of summer sun on brilliant icy walls; tripods that would keep the film rock-steady. Then, there had to be a few people to put some animation into the story.



Upper Left—Crossing a Perilous "wedge." Lower Left—The summit, through a crevasse 100 feet wide—and a misty curtain. Lower Right—"Swede" Willard leads his group through the stronghold of the storm gods. Upper Right—Tortured crevasses, older than history. Center—In a wierd, icy cavern. Photographs by Mrs. Chalmer Sinkey.

appointment. After all, a glacier should present a better front, thinks he.

Nisqually is an Indian name meaning "flat-nosed." It describes perfectly that end of the ice-bed that mountaineers commonly call a "snout."

Mountaineers, and those who travel perilous places for adventure, have a different version of this best-known ice field, one of twenty-eight, that have covered Mt. Rainier since Time, so old that we can only conjecture as to its beginning. Shod with thick-soled, spiked boots and wielding trusty alpen-stocks, they push upward to explore the gigantic blocks of ice terraced and crevassed by the storms of ages. More than a hundred of these explorers, poorly equipped or caught in a sudden blizzard, are estimated to have lost their way in the wierd maze of caverns and precipices. Somewhere in the relentless recesses of the glacier they are paying silent penalty for trespassing on the stronghold of the Storm-Gods.

The accessible parts of Nisqually Glacier have lured many amateur photographers and provided scenic material for professionals; but the high, tortured stretches that extend beyond ten thousand feet have never revealed their secrets entirely to a camera's eye.

Of course, these people were to furnish "carrying power" as well as animation, as no four-footed animal of burden could travel over this part of the glacier.

The chief guide at Rainier National Park was to lead the group and handle the details. He is a tall, sure-footed mountaineer, affectionately known to hundreds of outdoor enthusiasts and football-lovers as Swede Willard. His own eagerness to see the forbidden parts of Nisqually on film was largely responsible for the success of the trip.

He assembled a group of picked mountaineers, shouldered about twenty-five per cent of the entire equipment load on his square shoulders and kept us going when the odds seemed nine to one against the expedition.

The trip was not a long one—as film enterprises go—we were to start from Paradise Valley, at an altitude of fifty-five hundred feet, early in the morning, climb up and over onto the glacier to approximately a ten thousand-foot elevation, spend several hours on the crevassed ice fields and return the same evening to Paradise Valley. The party of nine men and women were all in good climbing condition—except the cameraman.

However, even before we set out, the Storm Gods voice their disapproval of this picture-making expedition into their inner



sanctum. Paradise Valley is so filled with early-morning fog that one foot hardly knows where the other wanders as we stumble up the rocky trail.

The look-out camp at Muir, ten thousand feet up, had telephoned down that the sun was breaking through, so we hoped that the misty blanket would lift.

Twenty-five pounds on a cameraman's back is twenty-five pounds on any good old level stretch, but twenty-five pounds going up Mt. Rainier when the altitude starts getting rare is beyond calculation. The mountaineers spurred along as though muscles didn't exist. A cameraman hates to admit to a mountaineer that he can't take it, so we keep right on spurting along. The nine people plodded in silence, saving good breath to help carry their loads. Nothing but the rhythmic clink of alpenstocks and the clump of feet as we stepped along Indian-file behind the hardy "Swede." The fog grows denser and forms globules of water on our eyelashes. Perspiration drips down from our soaking brows. Underfoot the trail is muddy as we turn down the edge of the moraine that leads onto the ice fields.

Who told Fox Movietone News about this glacier, anyway?

After an hour or so of going, Swede ordered: "Ten feet apart and watch your step." We pulled our eyes from the heels of the one immediately ahead and looked around. Just in front of us was a narrow ledge or path, not more than ten inches wide. A few scattered boulders stuck up in mute warning that there was a good supply of others ready to drop down from above. Over the ledge was an abyss filled with grey mist and somewhere to the left, in that abyss the main body of Nisqually Glacier ground its imperceptible way downward.

We hastily riveted our eyes to the heels of the plodder ahead, thrust the point of the "alpy" into an oozy hold and stepped gingerly along. Once over, "Swede" drops aside. "Take a blow," he offers, and we wilt down onto the wet landscape.

Here our progress is not lightened any as we are roped together, four in a group. A pair of pointed contraptions that have been poking me in the back for some time are transferred to my feet. Once strapped on, they prove most efficient in keeping me anchored to a firm footing. "Has everybody got their cramp-ons strapped," says Swede. So that's what they are.

Soon we are down on the ice. The snow is pink and generously punctuated with minute black wriggling worms. "Snow worms," say the mountaineers, "and the pink hue is caused by trillions of algae."

This calls for someone to tell the tragic tale that seems to be part of the saga of the mountaineer:

The algae met a bear.

The bear was bulgy.

The bulge was algae.

The moral of the story is: "No matter how thirsty you are, don't eat glacier snow."

Clump, clump go the line of feet. It seems there are to be no more "blows." The surface snow is slushy and going is hard. Every few feet we step over a small crevasse. The fog is still dense, if not denser.

We should have been out of the fog by now, but it took a bad turn on us and is creeping upward. So close to our goal it seems impossible to turn back. Swede knows his mountain, if any man does, so we put our faith in him and wind among the crevasses, through the fog.

The cracks are getting larger. Some cannot be jumped, even with the security of a rope. We circle around until a narrow spot occurs. Step by step and ledge by ledge we are going higher.

At last, after several hours, the fog is thinning. Once it starts, it disappears as if by magic, and we find ourselves peering through dark glasses at an amazing spectacle.

We are higher than moving picture equipment has ever been taken on Nisqually. On the right, a steep ice-coated rocky ledge that extends close to the summit. The summit itself appears to be so close that we could reach out and touch it. To the left, an awesome, broken mass of gigantic ice walls. Crevasses a hundred feet wide and five hundred feet deep! Seracs, worn by an eternity of raging blizzards! Cornices that stand out in sharp white contrast against the blazing sky and wedges that jut out into chasms from which no person would ever return once he missed a step there.

What a place for a camera!

I used an Akeley with various lenses and shifted from a 23 A. red filter to a G. The mountaineers forgot their weariness and provided plenty of animation; scaling walls by rope, crossing perilous narrow bridges, jumping like mountain goats over crevasses fifteen feet wide and no telling how deep.

With sound effects the story would have been perfect. Continuous avalanches rumbled down as tons of ice broke from the walls and hurtled down the glacier. Rocks pelted down from the Chutes and swished over the snow, piling up like mammoth snow balls.

There was one other drawback. The fog never quite disappeared. During the several hours that we remained in the stronghold of the Storm Gods, the mist blew in and out, sometimes completely obscuring the glacier and sometimes revealing it in all its weird glory.

At least we had a brief glimpse of the forbidden land, and during that glimpse we pictured its secrets on film, so they are secrets no longer.

## STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST, 24, 1912, AND MARCH 3, 1933

Of International Photographer, published monthly at Los Angeles, California, for October, 1935.

State of California, County of Los Angeles, ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Silas E. Snyder, who, having been duly sworn according to law, deposes and says that he is the Editor of the International Photographer, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher—International Photographer, Los Angeles, Calif.

Editor—Silas E. Snyder, Los Angeles, Calif.

Managing Editor—Silas E. Snyder, Los Angeles, Calif.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) International Photographers Local 659, International Alliance of Theatrical Stage Employees and Moving Picture Machine Operators of the United States and Canada, 1605 No. Cahuenga Ave., Hollywood, Calif. First Vice-President, Roy H. Klaffki; Second Vice-President, Hal Mohr; Third Vice-President, Jack Mackenzie; Secretary, H. Lyman Broening; Sergeant-at-Arms, Len Powers.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to

believe that any other person, association, or corporation has any interest direct or indirect in said stock, bonds, or other securities than as so stated by him.


5. That the average number of copies of each issue of this publication sold or distributed through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is..... (This information is required from daily publications only.)

SILAS E. SNYDER, Editor.

Sworn to and subscribed before me this 30th day of September, 1935.

HAROLD W. SMITH.


(My commission expires March 7, 1937.)

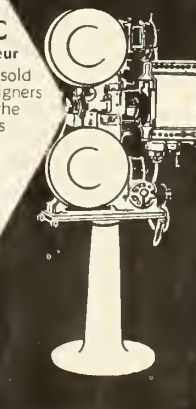


**EVERYTHING  
PHOTOGRAPHIC**

for Professional and Amateur

New and used. Bought, sold  
rented and repaired. Designers  
and manufacturers of the  
H.C.E. Combination Lens  
Shade and Filter Holder  
for any size lens.  
Send for bargain catalogue  
**Hollywood Camera  
Exchange**  
1600 Cahuenga Blvd.  
Hollywood  
Tel.: HO-3651  
Cable:  
**HOCAMEX**





# A Super-Powered Arc Spotlight

By PETER MOLE,

of

*Mole-Richardson, Inc.*

**W**HEN a cameraman raises the level of his general lighting, he must raise the level of his spotlighting to maintain the balance. In much the same way, if the efficiency of the units for general lighting be increased, the efficiency of the spotlighting units must also be improved. Within the past few years, the efficiency of the carbon-arc broadsides which are used for general lighting purposes has been increased by nearly 250%, while little, if any increase has been possible in the efficiency of the fundamental arc spotlighting units, the 80 ampere rotary carbon spotlight and the 24" Sun Arc.

Both these types were designed some time before the introduction of talking pictures, and they remain today, aside from minor changes made to reduce the noise of operation, essentially as they were ten or more years ago. Their burning is none too steady, and in spite of the fitting of fibre gears and choke coils, most of them are noisy enough to make sound men bristle at the mention of arcs. In neither design is the distribution of light wholly satisfactory: the 80-Amp. Rotaries give a rather nice beam, with a good range of beam-spreads, but they do not by any means utilize a favorable percentage of the light produced within their housings; the twenty-fours, like all reflecting spotlights, produce a powerful beam, but one which suffers from a very bad "dark spot" as soon as the beam is flooded out slightly.

Within the past few weeks, however, an entirely new arc spotlight has been developed. In comparison with its predecessors, it is as great an improvement as is the modern broadside when compared to its earlier prototypes. The new lamp, known as the Mole-Richardson "Hi-Spot" (MR Type 90), is in many ways a new concept in arc lighting. It is a compact unit, scarcely larger than the old rotaries; it combines the ideal beam of the condensing-lens types with the power of the reflecting arcs. It can be flooded out to a much wider spread than any mirror-spotlight, without dark rings, "hot spots," or a trace of element-shadow. It is genuinely silent, and burns without changes of either intensity or color; and modern design has made it much easier to operate.

The most obvious change in the new lamp is in the optical system, which is based on the same modified Fresnel-type lens which is already familiar in the "Junior Solarspot." Both the principles and the results of this system have been described in articles dealing with the "Solarspot": in the "Hi-Spot," they give essentially the same advantages. Since this lens is able to utilize a greater portion of the light produced by the arc, the beam is more intense at all spreads. Since this lens does not suffer from the limitations of the parabolic mirrors used in the Sun Arcs, the light is evenly distributed, with highest intensity always at the center, falling off smoothly toward the edges, and giving a soft spot which can very easily be blended with the beams of adjacent lamps. Thanks to careful optical design, the shadow of the negative carbon and its support, which is so troublesome in the Sun Arcs, is eliminated in the new lamp; it is no longer necessary to "cheat" with properties and columns to conceal these shadows: they are completely removed. The range of beam spreads in the new unit is almost double that possible with the old Sun Arcs, the range being from a tight spot-beam of 4° to a flood of 44°.

The reason why the older types did not burn steadily was because the carbon-feed was intermittent. In the "Hi-Spot," therefore, the carbon-feed is continuous, and is designed so that both the voltage and the spacing between the positive and negative carbons remains uniform at all times. Careful analysis of the burning-speeds of the two carbons has made it possible to synchronize the rates at which they are fed so that both positive and negative are consumed uniformly, and burn out together.

The new lamp uses carbons slightly smaller than those used in the older units, and designed especially for steadiness of burning and constancy of color-emission. These factors are heightened by the careful attention paid to making the arc itself burn perfectly. In all high-intensity arcs, the real source of most of the light is not so much the arc flame, as the ball of incandescent gases in the crater of the positive carbon. If the positive crater is not absolutely symmetrical, this gas-ball will wobble and break down, making the light fluctuate in in-

tensity and color: the fluctuations in the older units were sometimes visible to the eye, and are definitely objectionable where modern, super-sensitive black-and-white or color emulsions are used.

Analyzing the operation of the older types of high-intensity arcs, it was found that these fluctuations came partly from the fact that the carbons fed intermittently, and partly because the positive carbon was not rotated fast enough to keep the crater and its gas-ball symmetrical. In the new "Hi-Spot," the feed is continuous, and the carbon is normally rotated at a speed which has been found to give the maximum uniformity of crater. A control is provided, however, by which this speed can be altered within certain limits. In the earlier designs, despite the use of fibre gearing and other mechanical methods of quieting the feed, it was generally found necessary to stop the feed entirely when the lamp was used near the microphone. In the new lamp, tests made by sound engineers show that the lamp can be used within ten feet of the "mike" with the feed at normal speed; and when brought closer, or when dialog is at an unusually low level, all that is necessary is to reduce the speed of the feeding mechanism.



Please mention The International Photographer when corresponding with advertisers.



# BETTER HOME PROJECTION 16mm.

By F. HAMILTON RIDDEL

Due to its compactness, the "Hi-Spot" may be used in places where a larger unit—such as a 24"—would be physically impossible. The resistance grid of the "Hi-Spot," instead of being permanently fixed at the base of the stand, is removable, and may be placed near the lamp on the catwalk or parallel.

An added convenience at all times—and especially in such situations—is the fact that all of the lamp's operating controls are centrally grouped at the rear of the lamp-house, and plainly marked. The flooding-crank, the carbon-feed motor control rheostat, individual hand-cranks for both carbons, the main switch and the "striker" are all arranged within a few inches of each other, within easy reach of the operator. In addition, the locking-handle of the tilt bearing has been moved from its accustomed (and rather inaccessible) place, and placed at the left-hand side of the rear plate.

Careful attention to operating requirements has also done much to simplify the maintenance and operation of these lamps. Re-trimming, for instance, is accomplished much more quickly and easily, and the mechanism is more easily accessible for adjustments or repairs.

While the "Hi-Spot" was produced primarily to supplant the obsolescent "rotaries" and 24" Sun Arcs in Technicolor cinematography, it is perhaps significant that they are finding equal employment in the production of black-and-white films. Combining the power of a 24" Sun Arc with even more satisfactory light distribution and compactness than is found in a condensing-lens spotlight, it is only natural that these lamps should prove increasingly useful in all types of photography where high intensity and controllability are required.



WITH the initial introduction of amateur movies, the novelty of screening personal motion pictures was sufficient, in itself, to intrigue both the home projectionist and his friends. That the pictures started all too often with a blinding flash of white light on the screen, perhaps followed by dancing images up-side-down in backward motion of a non-rewound subject, and with the reel finally ending in another dazzling beam of intense light, could well be expected. The mere fact one was seeing with only fair success familiar friends and places, moving as in real life upon the screen, was enough to hold the interest of the home audience in those days.

Fortunately, the passing years have brought new modes in amateur presentations. The professional screen, always a rich source of instruction to the home cinematographer and projectionist, has of course set a standard which the serious amateur has been quick to adopt for home use. Too many amateurs, it is to be regretted, have ignored this important standard. For some unknown reason, the latter group supply verbal alibis and excuses during their home-movie presentations. Careless screening of movies which, had they but received proper preparation and projection, would have been bound to create a favorable impression on the audience. Instead, the usual home-movie show is so often a batch of film, devoid of all rhyme or reason in its presentation on the screen. With rare exceptions, it has been an all too common occurrence for many people, having witnessed such hit or miss home-movie shows, to brand them awful flops. So when friends are invited to see your personal movies, give them a smooth presentation on the screen—make your pictures "click" with the audience, as they say in Hollywood.

If you are one of the old-timers in the home-movie game (and even if you're just a beginner), you have many reels of various subjects. Presuming all these have been properly edited and titled—as **every** film you make **should** be—there still is something more you can do to insure a satisfying showing. A systematic arrangement for any type of reel, which will furnish real pleasure in screening the results of your movie-making, no matter what size film you are using. The following suggestions, however, refer to 16 mm.

With a film rewinder and splicer at hand, start with your first 400-foot reel of pictures. For the first strip of film at the beginning of the reel, use the white-frosted type, allowing about two feet of same to act as a leader. This film stock is particularly tough and therefore ideally suited, as leaders are subject to much handling in threading the projector. Following this leader, splice in about 10 inches of positive raw stock. This piece of film permits an excellent writing space on which to print, with India ink, the Reel Number and Subject Title of the reel at hand. After the positive stock, splice in some 8 inches of black, opaque film (developed but not exposed). The end of the black strip of film is then spliced to your introductory title or scene, as the case may be.

Now wind through the 400 feet of film until arriving at the last scene or "The End" title of the reel. At this spot, splice in one foot of black, opaque film. Follow this with 6 inches of positive raw stock, on which is inked the Reel Number and Subject Title, and in large letters the word REWIND. Spliced to this positive stock should be a foot of the regular white-frosted film which acts as a trailer and which withstands handling due to rewinding. Now rewind the completed 400-foot reel. As this reel is now ready for projection, let's see the advantages this sort of arrangement has effected.

First, the two feet of white-frosted leader is an ample amount of film to easily thread into the projection machine. Enough, also, in order to prevent the first title or scene from becoming finger-marked in handling, the common fate of any beginning footage on a reel.

Second, the positive film strip which follows is easily spotted, and a glance indicates the subject of a film to be projected. It also indicates the film has been rewound from a previous showing and is now ready for the present screening. Nothing can be so embarrassing, when ready to project a subject, as to find the film not rewound and your performance must be delayed to accomplish rewinding.

Third, thread the projector so the beginning of the black film strip rests in the aperture gate. Hence, when the machine is started and the picture begins, there will be no blinding flash on the screen to annoy the audience, and the ensuing show will be enjoyed to the utmost.

Fourth, as soon as the last scene of the reel or "The End" title has appeared, the black trailer will darken the screen. Again, there will be no eyestrain of a flashing white screen. The darkened screen also acts as a signal to the projectionist to turn off

the projector lamp if there is a separate switch for this purpose; or if no such switch has been provided, enough time is allowed for placing one hand in front of the projection lens until all the remaining trailer film has been run through the projector.

Fifth, as you will usually project several subjects during a presentation, without interrupting your show for separate rewinding, naturally there will be various pictures wound on various reels. For sorting and rewinding purposes, therefore, simply refer to the "REWIND" positive film strip at the end of each reel, where you will find the Reel Number and Subject Title noted. Most important, this strip of film acts as a reminder that the reel must be rewound before another showing.

Once having arranged your film subjects according to the foregoing suggestions, you will have greater convenience in projection, and afford greater pleasure to your audience. Your home-movie presentations will always "click" with your friends.

#### A Comparative Sound Film Table

Merely for the purpose of ready reference there is appended below a comparative sound film table. It is believed this table will furnish an interesting comparison to the amateur movie-maker concerned with 16 mm. sound-on-film.

Comparative Sound Film Table

Screen Time	Frames	35 mm.	16 mm.
1 second	24	1½ feet	24 frames
2 seconds	48	3 feet	1 foot and 8 frames
3 seconds	72	4½ feet	1 foot and 32 frames
4 seconds	96	6 feet	2 feet and 16 frames
5 seconds	120	7½ feet	3 feet
6 seconds	144	9 feet	3 feet and 24 frames
7 seconds	168	10½ feet	4 feet and 8 frames
8 seconds	192	12 feet	4 feet and 32 frames
9 seconds	216	13½ feet	5 feet and 16 frames
10 seconds	240	15 feet	6 feet
11 seconds	264	16½ feet	6 feet and 24 frames
12 seconds	288	18 feet	7 feet and 8 frames
13 seconds	312	19½ feet	7 feet and 32 frames
14 seconds	336	21 feet	8 feet and 16 frames
15 seconds	360	22½ feet	9 feet
16 seconds	384	24 feet	9 feet and 24 frames
17 seconds	408	25½ feet	10 feet and 8 frames
18 seconds	432	27 feet	10 feet and 32 frames
19 seconds	456	28½ feet	11 feet and 16 frames
20 seconds	480	30 feet	12 feet
21 seconds	504	31½ feet	12 feet and 24 frames
22 seconds	528	33 feet	13 feet and 8 frames
23 seconds	552	34½ feet	13 feet and 32 frames

24 seconds	576	36 feet	14 feet and 16 frames
25 seconds	600	37½ feet	15 feet
26 seconds	624	39 feet	15 feet and 24 frames
27 seconds	648	40½ feet	16 feet and 8 frames
28 seconds	672	42 feet	16 feet and 32 frames
29 seconds	696	43½ feet	17 feet and 16 frames
30 seconds	720	45 feet	18 feet
31 seconds	744	46½ feet	18 feet and 24 frames
32 seconds	768	48 feet	19 feet and 8 frames
33 seconds	792	49½ feet	19 feet and 32 frames
34 seconds	816	51 feet	20 feet and 16 frames
35 seconds	840	52½ feet	21 feet
36 seconds	864	54 feet	21 feet and 24 frames
37 seconds	888	55½ feet	22 feet and 8 frames
38 seconds	912	57 feet	22 feet and 32 frames
39 seconds	936	58½ feet	23 feet and 16 frames
40 seconds	960	60 feet	24 feet
41 seconds	984	61½ feet	24 feet and 24 frames
42 seconds	1008	63 feet	25 feet and 8 frames
43 seconds	1032	64½ feet	25 feet and 32 frames
44 seconds	1056	66 feet	26 feet and 16 frames
45 seconds	1080	67½ feet	27 feet
46 seconds	1104	69 feet	27 feet and 24 frames
47 seconds	1128	70½ feet	28 feet and 8 frames
48 seconds	1152	72 feet	28 feet and 32 frames
49 seconds	1176	73½ feet	29 feet and 16 frames
50 seconds	1200	75 feet	30 feet
51 seconds	1224	76½ feet	30 feet and 24 frames
52 seconds	1248	78 feet	31 feet and 8 frames
53 seconds	1272	79½ feet	31 feet and 32 frames
54 seconds	1296	81 feet	32 feet and 16 frames
55 seconds	1320	82½ feet	33 feet
56 seconds	1344	84 feet	33 feet and 24 frames
57 seconds	1368	85½ feet	34 feet and 8 frames
58 seconds	1392	87 feet	34 feet and 32 frames
59 seconds	1416	88½ feet	35 feet and 16 frames
1 minute	1440	90 feet	36 feet
1¼ minutes	1800	112½ feet	45 feet
1½ minutes	2160	135 feet	54 feet
1¾ minutes	2520	157½ feet	63 feet
2 minutes	2880	180 feet	72 feet
2¼ minutes	3240	202½ feet	81 feet
2½ minutes	3600	225 feet	90 feet
2¾ minutes	3960	247½ feet	99 feet
3 minutes	4320	270 feet	108 feet
3¼ minutes	4680	292½ feet	117 feet
3½ minutes	5040	315 feet	126 feet
3¾ minutes	5400	337½ feet	135 feet
4 minutes	5760	360 feet	144 feet
4¼ minutes	6120	382½ feet	153 feet
4½ minutes	6480	405 feet	162 feet
4¾ minutes	6840	427½ feet	171 feet
5 minutes	7200	450 feet	180 feet

## ALONG THE WATER FRONT

(Continued from Page 9)

Leica Photography, and also in a previous issue of The International Photographer. This type of picture might be considered dangerous to make because the ire of some of the tough boys along the water-front is not something worth toying with—and when they are drunk they become particularly nasty, as only water-front inhabitants can.

The small size of the camera permits it being tucked hastily in the pocket when occasion demands, and besides, it is always ready for work at a moment's notice. The feature of 30 to 36 pictures per loading, as in the Leica and similar cameras, is a decided feature, for it reduces the bother of reloading just so much. Some cameraists like to carry their camera in an ever-ready case, while others prefer a soft purse case which permits the camera to be slipped in the pocket without the body and lens-front becoming encrusted with bits of tobacco and other odds and ends men usually carry in their pockets.

An exposure meter is of vital importance for marine work, for light is exceedingly variable and tricky near or on the water. A photo-electric type instrument is to be preferred, even though it is slightly bulkier. Its use will more than repay in good pictures the inconvenience incurred. Similarly, a filter, preferably a pale yellow one, will produce better rendition of sky and water. For extreme contrast effects, a red filter is suggested, for it produces a startling black sky and water which results in strong, interesting effects.

As to film, most pictures will require only a good orthochromatic film which, incidentally, should be of the fine grain variety. Ortho film is suggested for most cases because there is little need for a panchromatic emulsion except for special scenes, such as, for example, where the red filter is used. Most people forget that our modern ortho emulsions are highly satisfactory and not at all to be compared with what they used to be years ago. Since the general acceptance of pan film, everyone seems to have changed over to pan exclusively—whether it was necessary or not. With the pale yellow filter, entirely satisfactory correction is secured with all films.

Owners of miniature cameras for which Dufaycolor film is provided should take every opportunity to produce natural color pictures—and here the exposure meter is even more strongly suggested, because this film has but little latitude to compensate for faulty exposure, owing to its being a reversal process. Those who have already attempted Dufaycolor pictures of water-front subjects need no word from me as to the splendid results obtainable.

On or near the water the occasion for a telephoto lens makes itself felt. There will be ships, for example, just off shore sufficiently to be photographed too small with the regular lens. How nice it is, in such a case, to merely substitute a longer focus lens for it and secure a real close-up! One worker in Atlantic City, W. H. Ledsham, had a 15-inch lens converted to work on a Leica so that it actually operated as a 22-inch lens with an aperture of f:6.3. Some of his results with this extremely long-focus lens are reproduced herewith. He claims that this lens is really a bit too long for all general work, and has therefore put it aside except for those rare cases where only such a lens can "bring home the bacon."

In general, the water-front offers some choice photographic activities, and it is a pity that more cameraists don't go after this sort of work. Why not make use of this suggestion if you have a water-front available to you? Take your camera, a few needed accessories, together with your favorite pipe and a pouch of tobacco, and sally forth for the day? I can promise you not only a good time but an excellent crop of pictures that will delight you as well.

#### ON THE NEW JOB

James R. Wilkinson, the new head of Paramount's Camera Department, has been a trusted employee of the studio for sixteen years. He was formerly assistant to Harris Ensign in the laboratory. Mr. Wilkinson has a host of friends who will wish him unlimited good fortune in his new work.



## MOTION PICTURE SOUND RECORDING

(Continued from Page 10)

former, we find that most transformers of this type have an overall primary to secondary ratio of 1 to 1.5. Therefore we have secured a peak voltage for the grids of our 2A3 tubes in the order of  $162 \times 1.5$ , or 243 volts. Since we required only 124 volts, this may seem like an excessive amount; but that is not so, because we can always decrease our gain but we cannot build it up above the maximum value in these calculations without adding stages of amplification or changing the tubes to tubes of a higher mu (voltage amplification).

## Control of the Voltage Gain

The ratio of the grid voltage we desire to the grid voltage that theoretically will be developed by the amplifier is  $124/243$ , or approximately  $\frac{1}{2}$ . Therefore if we place the blade of the potentiometer (marked Pot in the diagrams) at one-half of its maximum setting, the voltage on the grids of the final amplifier tubes will be approximately 124 for normal voice levels.

This half-maximum setting of the potentiometer, which is the gain control for the amplifier, for normal operation provides us with wide control over the latitude of the sound being picked up for recording. If the speaker whispers or speaks in a voice less loud than normal, we can advance the potentiometer toward its maximum position and so increase the voltage gain of the amplifier to compensate for the reduced voltage developed by the softer sounds. If the speaker shouts, or a loud voice must be recorded, the potentiometer can be turned to the proper point between half-maximum and minimum positions.

Let us see what the voltage gain of our amplifier will be,

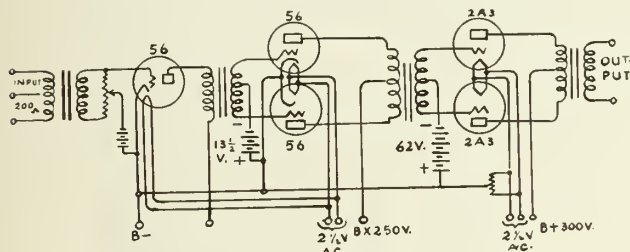


Figure 3. The amplifier arranged for operation from batteries.

from first to last grids. The voltage amplification of the first tube is 10, the voltage gain in the first transformer is 3, the push-pull second stage of amplification provides another gain of 10, and the second transformer steps up the voltage one and a half more times. So  $10 \times 3 \times 10 \times 1.5 = 450$ , or voltage amplification—quite a bit more than the 230 we require. But if we had used a first transformer with a ratio of 1 to 1.5, our voltage gain would have been  $10 \times 1.5 \times 10 \times 1.5 = 225$ , just about what we wanted. What would we have done in that case, however, if the speaker sometimes spoke in a voice that was below normal voice level? We could hardly have asked the director to wait until we rebuilt our amplifier. Hardly!

## Completed Circuit of the Amplifier

In Figure 3 is shown the amplifier arranged for operation from batteries in the plate and grid circuits. While the filaments of the tubes could likewise be battery operated, the small amount of hum that will be developed by operating them from the alternating-current lines is hardly likely to prove troublesome. If the filaments are also to be battery operated, they may be connected to a six-volt storage battery in the manner shown in Figure 4. So connected, they will draw  $4\frac{1}{2}$  amperes. A rheostat is provided to allow for variations in the voltage of the battery.

This amplifier is designed to operate entirely from rectified alternating current, such as provided by a tube rectifier and a well-designed filter system, and the details of a suitable power supply and modifications in the amplifier circuit that are necessary will be taken up next month. Grid and plate filtering circuits are required in the amplifier to provide de-coupling

between the stages when rectified A-C supply is used. Operation from batteries, as in Figure 3, is more than satisfactory, however, but it is costly in investment and upkeep.

In this completed circuit, which has been reduced to its absolute essentials, it will be observed that the potentiometer is connected with the blade going to ground instead of to the grid as is the usual custom. This arrangement is an improvement, for it permits the important grid lead to be short and solid. The control exerted by the potentiometer on the gain of the amplifier is not affected by this change. This potentiometer, which preferably is of the wire-wound type because that type is less liable to become noisy from use, may have a resistance anywhere between 100,000 ohms and 500,000 ohms, with something like 200,000 ohms as the optimal value. In commercial amplifiers of this type, a tapped potentiometer is employed that has an even number of decibels loss between each of its steps.

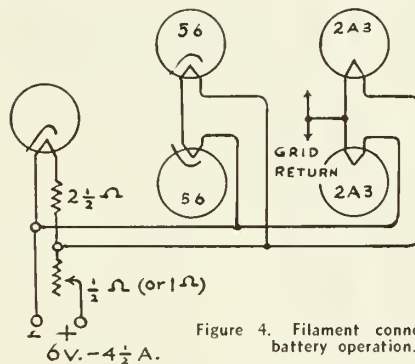


Figure 4. Filament connection for battery operation.

## Data on the Circuit

The input of the amplifier is through a microphone transformer that has an input impedance of 200 ohms, which will match almost any sound pick-up circuit or mixer. Because the design of the amplifier was undertaken with the assumption that a good double-button carbon microphone would be used, it did not mean that a condenser, dynamic, ribbon, or crystal microphone would not be used. It merely was simpler to explain the steps in the design working on the proposition that a simple type of microphone would be used.

The impedance of this input transformer makes it possible to operate the amplifier from any of the microphones mentioned above, from a transmission line, or from the output of a standard mixer panel. All of these arrangements will be discussed in detail in the following two chapters.

It will be noted that the output impedance of the amplifier is not given. This impedance will vary with the four different types of service to which the amplifier may be delegated, as shown in Figure 1, and will be discussed later. Individual grid-bias, or C, batteries are shown for each stage. This is a step to avoid coupling effects in the amplifier, which tend to produce when they are present feed-back and howling, as well as unstable operation. A center-tapped resistor is required for the filaments of the type 2A3 tubes when the filaments are operated from alternating current. By connecting the grid return lead to the center of this resistor, hum from the filament circuit is avoided to a large degree.

In the next of this sub-series of three chapters on practical amplifier design, a more practical and complicated form of this amplifier will be discussed, as well as the power supply and microphone circuits that should accompany it. In the last chapter, the design of a high-power amplifier to make this into a complete public address system will be described; and data will be given on an associated mixer control system for microphones.



# MAX FACTOR'S

## NEW

# Satin Smooth

# LIQUID FOUNDATION

A REVELATION IN FACIAL MAKE-UP



## Flattening Prints

# MINIATURE CAMERA PHOTOGRAPHY

## A Bit of Advice

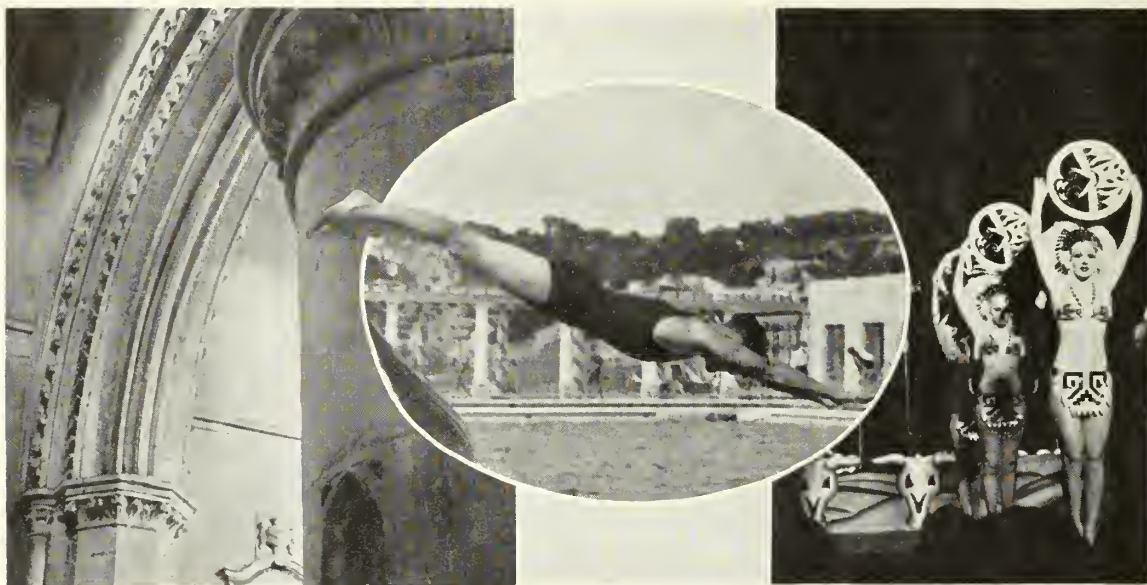
**F**LATTENING PRINTS: The flattening of prints seems to be a major problem with many amateurs. If the photographer is still unsuccessful he can resort to one of the solutions for this purpose, which is obtainable from practically all dealers. These solutions merely require application to the prints to render them flat.

However, there still is the question of how to obtain perfectly flat prints through ordinary methods. After the prints have been removed from the wash water, allow them to dry thoroughly.

transmitted light. This is due to a small amount of alkaline developer remaining on the film.

The developer is not readily neutralized by the stale fixing bath and the silver bromide is partially reduced to metallic silver to form the dichroic fog. An obvious remedy is to use a fresh fixing bath. Or, the film should be rinsed thoroughly before being placed in a used fixing bath. Then again, a short-stop bath can be employed to kill the action of the developer.

Perhaps some photographers may object to the use of a fresh



Left—Architectural Study. Leicaphoto by A. C. Elworthy on Agfa Superpan film. Center—Action photo. Photo by A. C. Elworthy. Perutz Fine-Grain Film; 1/200 sec. f:6.3. Right—Stage Scene. Photograph by E. Kyrmse, with a Leica Camera and DuPont Superior Film.

Then moisten the backs of the prints with alcohol (70 per cent medicated alcohol, obtainable at any drug store), using a wad of cotton or similar material. Place the prints between blotters and put a weight on them, such as a stack of books, etc.

Many dealers have ideal print presses for amateur use in the form of two boards between which the prints and blotters are placed and the whole tightly pressed together by means of a canvas belt.

The procedure thus far described may be the one followed by many amateurs, but the reason for their failure is the fact that the prints are left under pressure for an insufficient time. In many cases it is merely over night, which accounts for the prints still curling at the edges. The prints should be left in the press for at least two or three days. When they are removed at the end of this time they will be perfectly flat.

While on the topic of flattening prints we may mention a point in relation to chromium ferrotype tins. Sticking of the prints to these tins can be avoided by wiping the tins with a moist chamois before the prints are applied.

**Developer for Local Application:** In some cases, to obtain the proper effect, a specific part of a print may require greater development than the print as a whole. In such a case the print is developed normally, rinsed in water to stop further development, and then the portion of the print requiring further treatment has developer applied to it.

It is necessary that the developer used for local application be relatively viscous so that it will not spread to other portions of the print. For this purpose glycerine or syrup can be added to the developer. It is then applied with a brush.

When the particular portion has received sufficient development, the print is again rinsed and placed in the fixing bath.

**Catalogue of Schneider Lenses:** A new and interesting catalogue on the Schneider lenses is being supplied by Burleigh Brooks, 127 West Forty-second Street, New York City. The reader may obtain a copy of this catalogue by writing to Mr. Brooks.

**Using an Old Fixing Bath:** Whenever possible, it is always best to use a fresh fixing bath for miniature negatives. An old fixing bath may produce dichroic fog. A negative having this detriment appears yellowish green by reflected light and pink by

fixing solution for every one to two rolls of film because of the expense. It must be remembered that after being used to fix one or two rolls of film, the hypo solution is still suitable for fixing prints. A separate container can be kept at hand into which the hypo is poured after it is used for films, to be used for fixing papers in the future.

**That Dust Problem:** Suggestions for removing dust from the negatives during printing are constantly offered, and here is another one tendered by a miniature camera photographer. Draw the film through a folded chamois before it is placed in the enlarger.

**Diffusing Mediums:** At times the photographer will desire to diffuse the light from his lamps to get softer effects. He must take into account the fact that the diffusing medium cuts down the illumination. If a meter is employed it will be a simple matter to measure the diffused light to obtain the necessary exposure.

When artificial light tables are referred to, a consequent longer exposure will be necessary, according to the diffusing medium employed. Silk transmits from 62 to 75 per cent of the light. Ground or pebbled glass has similar effects. White opal glass transmits still less light—50 per cent of the light directed at it. The photographer must allow a requisite increase in exposure when diffusing his light.

**Large Trays:** Some photographers may become ambitious this winter and desire to make large prints, such as 16x20 inches, or even larger. The miniature camera worker may feel that the cost of trays accommodating the large size papers is a little beyond his budget. It is a simple matter to make trays at home. They can be constructed from wood and then treated with a few coats of molten paraffin or a chemical resistant paint as Kodacoat or Probus paint, to render the trays leakproof as well as impervious to the action of the processing solutions. In this manner the cost of making relatively large prints is reduced.

**A Bit of Advice:** Quite often in this department advice has been given to use slower films in preference to the super-speed emulsions, whenever it is possible to do so. The slower films will produce a finer grain, yielding sharper enlargements. Now we will mention a point in reference to speed lenses. Such objectives on high-grade miniature cameras are generally of superb construc-



tion, producing the utmost results. When used at the full diaphragm opening they will produce sharp results. There is, however, an optical law which should be kept in mind—the larger the aperture of the lens, the shorter is the depth of focus. As the diaphragm of the lens is closed down, the depth of focus will increase.

When working under adverse lighting conditions, the fast lens is kept wide open, but in daylight it is ordinarily not required. Despite this, many amateurs are in the habit of using their lenses at large diaphragm openings, preventing overexposure by using fast shutter speeds. This may be a wise procedure when making action photos. For ordinary subjects, fast shutter speeds such as 1/300th sec., 1/200th sec., etc., are not necessary. It would be wiser to close the lens down to get a greater depth of focus and to use a slower shutter speed.

Some photographers may raise the point that the miniature camera is easily moved when the shutter is tripped, making a fast shutter speed advisable to get sharp pictures. However, about 1/60th sec. should be fast enough for this purpose, and many of us can keep the camera steady at slower speeds.

**Soft Focus:** Many miniature camera photographers have often experimented with soft focus, especially in portraiture, and the interest in this type of photography is particularly keen at this time of the year. The long evenings allow a considerable amount of time for indoor work.

One point must be cleared up in the minds of many amateurs, and that is soft focus does not mean out-of-focus. The latter produces distinctly unpleasant results. In soft focus the image is sharply focused on the film, but instead of the crisp images produced by the usual miniature camera lens the lines are softened; there is greater depth and more plasticity to the photograph. Detail is suppressed, the subject being treated in masses. This effect can only be truly obtained with a soft focus objective or its equivalent.

Some photographers have resorted to the use of gauze and similar material to soften the sharp lines produced by their lenses. The gauze can be placed in front of the lens when the picture is taken, or before the enlarger lens when the print is made. The latter method is to be preferred, for the photographer will still have a sharp negative for making ordinary prints. The effects thus produced, however, cannot be compared with those made with a soft focus lens.

## BY AUGUST WOLFMAN



Leica owners have available the Thambar soft focus lens which produced superb results. A new product has just been announced which owners of other miniature cameras can avail themselves of. It is the Duto auxiliary lens, supplied in two powers, No. 0 and No. 1, for stronger and weaker lightings. It is designed to give pleasing soft effects. More detailed information can be obtained from Burleigh Brooks, 127 West Forty-second Street, New York City.

**Chrome Alum Bath:** A chrome alum bath for hardening miniature negatives has been recommended in this department from time to time. Some photographers have been hesitant to use such a bath, fearing a sludge will form that will settle on the film.

After the film has been developed and before being treated with the chrome alum bath, the film should be rinsed in running water for a minute or two. When the chrome alum bath is added, agitate the tank for a few seconds. Then again we can prevent the formation of a sludge by acidifying the chrome alum bath so that it will neutralize the alkaline developer. This can be done by adding sodium bisulphite to the chrome alum bath. A last precaution is to wipe the film carefully when it is hung up to dry.

## HISTORICAL BACKGROUNDS

(Continued from Page 17)

degree of curvature of the field, remains the same whatever the separation of the two elements. Obviously, therefore, by employing a negative and positive lens separated from one another, it is possible to correct curvature of field with a choice of glasses of almost unlimited refractive index variation.

Starting with this fundamental elementary conception, Taylor found out that in order to correct distortion it was necessary to divide the positive element into two, placing one positive element each side of the negative (dispersive) elements. By suitable choice of glasses chromatic aberration was corrected. Spherical aberration and coma were offset by a suitable choice of curves and astigmatism was taken care of by placing the stop near the dispersive element so that it was nearer that element than either of the two positive elements.

No fundamentally new principle of photographic lens design has been discovered since then, although obviously the fundamental triplet idea has been modified and extended by splitting the functions of any one or more of the three original elements between several glasses.

One such extension of the previously known properties of photographic lenses was made in 1920, when Taylor, Taylor & Hobson introduced the F.2. type of lens, which was first introduced to the cinematograph studios as the "Kinic" lens, and later was completely redesigned as the F.2. "Speed Panchro."

After some preliminary hesitation about using lenses of 72. aperture, the superior definition and quality of these lenses won acceptance under the most rigid tests and the use of really fast lenses came into general use in the studios for the first time.

Shortly after the introduction of sound, as you know, combination of incandescent lighting and panchromatic film came into general use. For the first time a new factor entered into the correction of photographic lenses, or rather a modification of the regular chromatic correction had to be considered. Formerly all lenses had been corrected so that the blue and yellow rays focused at a common point, and the other rays as close as possible. In other words, except by extremely complicated design it has not been possible to correct the chromatic aberration so that all rays focus at exactly the same point, so the compromise was

made by focusing the two principal colors and getting the others as close as possible.

Inasmuch as incandescent light gave off a preponderance of red and yellow light, and as panchromatic film was so sensitive to red, it was obviously necessary to recognize the importance of where the red rays focused. Formerly, owing to the correction for the blue and yellow, the red rays had focused quite a way off but that had not been of any special importance. It then became necessary to change the chromatic correction to focus the blue and red rays. The Kinic formula as mentioned above was further modified—the illustration shows the first form of this lens to give the F.2 speed with the critical correction of the chromatic error for the blue and red rays. In making this correction, the blue G Fraunhofer and the red C Fraunhofer lines were focused at one point. (The Fraunhofer blue G lines were used in preference to the blue F line formerly employed in old lenses which were corrected for the blue F and yellow D lines.) By this is meant that the maximum error of focus for the yellow was only .001-inch even for the 3-inch F.2 lens, as illustrated in the figure. This was so close that the lens could almost be termed apochromatic. As such these lenses are very effectively corrected for color processes such as bi-pack color process or something like the Kodachrome process if and when that would be introduced in the 35 mm. field.

As is generally known, Taylor Hobson have also modified the Speed Panchro type of correction to give the special lenses used by Technicolor in their three-color process. In these lenses, however, the corrections are complicated due to the fact that all corrections are carried through the split-beam prism which is part of the Technicolor system, but the fundamentally precise color corrections in combination with the exquisite balance of all the other corrections has given Technicolor such sharp original negatives to work from, that they have been able to carry this sharpness all the way through subsequent processes—you are all familiar with the vast improvements in the definition of the latest Technicolor results.

It is hoped that this brief analysis will acquaint the cameraman with some of the facts entering into the development and perfection of the lenses which he uses every day and upon which he depends so much for obtaining the results he desires.

# A VOICE FROM ENGLAND

By a Hollywood Special Effects Cinematographer Who Thinks  
There's an Ethiopian in the English Movie's Wood Pile

**N**OW, I don't know whether you folks in Los Angeles are really awake to the serious situation which is developing over here on account of so many big bugs coming here to make pictures. As I expect to be back in America soon I don't think I am violating conventionalities in trying to help the situation there instead of backing England.

I am offering my services to help here, but they have the same old slow, methodical methods of leaving well enough alone. However, this new influx of American producers and actors probably will make a great change in American production and I think you should be prepared for it. I will explain as best I can and I hope you will be able to follow.

In England great care is given as to just what is required to be put into a picture and not to waste film by taking so much footage that it must be thrown away. While I believe this can be overdone, because we know that in art, music and writing very little is accomplished at the first attempt; so with the Director—he makes a scene and sees by that "take" where it can be improved. The English method is to think out carefully, as carefully as they can, the shot first. Retakes, as far as I have been able to see, are very few and far between. I don't think they have such things here as supervision. They, as well as I, can't see the logic of paying a director two or three thousand dollars per and then having a supervisor at three hundred come along and tell him what's wrong. Now, the point I am trying to make is that this state of affairs will be noticed by the Americans and is bound to have its effect in the method of future production upon their return to America.

Then another thing, pictures can be made so much cheaper over here, on account of the methods I have stated as being employed and the lower salaries, so what is going to happen? American producers are going to make pictures in England, your studios will be idle and then what? The only answer I can see is to get busy now, right now, and see that only so many English pictures are allowed to enter the United States.

Now, a little constructive criticism as a help to the cameraman: I don't know just how much the gaffer has encroached upon the lighting of sets in the United States, but here they seem to have quite a say so. During the taking of the picture, "Dictator," there was one very fine, large set that I worked on. (I painted a large relief ornament 15 by 36 feet in the largest scene), and there was a chance for some wonderful lighting effects. The set consisted of a great many angles and columns in groups and called for an artist to get the best out of it. Now, what happened? The cameraman sat down talking to people and the gaffer was walking around the set simply pointing out a projection here and a column there to light up. In other words, a "picture" wasn't being made of the set, but just simply a series of light against dark.

Now, here's the danger. I think the cameraman is a little too sure of his position, whereas in the old days I remember this lighting of sets was a carefully planned procedure. The fact is very easily overlooked that there are a great many photographers who can take a group of people in the foreground and light them up into a good picture, but very few know how to combine this group with a good background, properly lighted, to harmonize with the foreground group. Don't let this get away too far from the cameraman.

## MINIATURES

Here I would like to say a few words on my pet subject, the miniature. I have yet to see a miniature of any depth, except my own, that carries the atmospheric perspective properly (please pardon my extreme reticence) and this is the reason:

Take a miniature depicting, let us say, half a mile of depth, at one inch to the foot; it may be as required one-half inch to the foot. Now at half a mile there is a great deal of atmospheric cutting down the shades and shadows. You will notice that if you take a picture showing this distance, take a piece of cardboard and cut a hole in it so that you can see only the light portions at different distances, back there is hardly any difference. Let the shaded portions show and where the distances will be very light grey, the foreground will be in some cases pure black. This gradation is a gradation from black to light grey and, say the distance occupied by the miniature occupies

only several feet at the most. Now these several feet may be only that space occupied by the first building the miniature is to depict; consequently you have comparatively the same dark there is on the first building covering the whole miniature. Do you follow me? I hope so, as it's beginning to seem kind of deep to myself.

I am talking now of a miniature taken in the open. Here, I might say, the only successful method I have found is to paint your buildings in gradation of a slightly darker color, then bring a reflected light back into the buildings to kill the shadows. This method really applies to any miniatures taken under a roof in shade, with artificial light, as then you can light your buildings up with one source of light, using the same method of reflection.

That is the reason I have always advocated using my glass process on the distant buildings in conjunction with a built miniature as it is less expensive and better results are obtained, but still when the miniature is entirely built, the method I have mentioned seems to be the only solution and if once a person realizes this atmospheric condition, the next time he looks at a miniature not properly lighted, he is going to get that same sinking spell in the pit of the stomach that I get.

Of course the majority will say: "Well, the miniatures have looked pretty good so far. Yes, but everything is subject to comparison—until you see something better the "usual" is very good.

I want to add that some thought should be given to the taking of pictures, that is exterior scenes on the sound stage. The voice has an entirely different tone in a room from what it has out in the open and I think this will be noticed after a while. For myself, when a beautiful pastoral scene is being shot, to hear the hard, full tone of a large interior makes me want to get up and leave.

## A FEW DAYS LATER

**Here it is. Just cut it out of this evening's paper. There isn't the outlet over in England for such an extensive program, so get busy if you don't want Hollywood to be dead.**

"Marlene Dietrich has signed a contract to make a picture in England in April.

"Charles Chaplin is considering coming here to star in films.

"Mr. Alexander Korda, producer member of the United Artists Corporation and executive chief of London Film Productions, gave this information and outlined new plans when he landed in Southampton today after his visit to Hollywood.

"Mr. Korda said: 'We will be spending 2,000,000 pounds on 20 pictures next year at our new Denham studios.'

## "CONTRACTS SIGNED

"Some of the films will be made by London Films, some by directors of the corporation. We have now contracts with King Vidor, William Kaye Howard and Harry D'Arrast, all prominent directors.

"We hope to complete contracts soon with Mr. Frank Lloyd (who directed "Cavalcade"). He will come over and form his own production unit. Eddie Gouling is coming to make a Merle Oberon picture. Miss Oberon will be available after fulfilling her present contract with Samuel Goldwyn.

"Sooner or later all the directors of United Artists will come to England."

Scheibe's FILTERS

In World-Wide Use

produce Moonlight and Night Effects in Daytime-Fog Scenes-Diffused Focus and many other effects With any Camera-In any Climate

**George H. Scheibe**

ORIGINATOR OF EFFECT FILTERS  
1927 WEST 78TH ST. LOS ANGELES, CAL.

HOLLYWOOD STUDIOS USE THEM IN EVERY PRODUCTION



## STILLS AND CAPTIONS

By HARRY COTTRELL



One of the first things the average person is apt to do upon opening a magazine is to go through it and look at the pictures, with their captions, before reading the printed text. No matter how excellent a write-up may be, the right kind of stills make it doubly effective. Therefore, the Still Department is one of the most important departments in a motion picture studio; it is really the right arm of the Publicity Department. Copy may take up two or three columns, but a still with a caption is apt to get more attention from the average reader.

Last year our department here at Paramount supplied close to a million stills. Most of these go to New York, where they supply the different syndicates, newspapers and magazines all over the world. The fifty-six people in our department are kept pretty busy supplying Mr. and Mrs. Public with the right kind of photographs. After finishing with the negatives here, they are shipped on to New York and kept on file.

Over sixteen years at this work convinces me that one must constantly be alert, experimenting with new formulas and improving methods.

The thing to which I attribute most of the success of our department is the method of controlling the contrast of negatives in development. I might say it is the only photographic still department I know of where this method of handling panchromatic film has been worked out to an absolute science. By keeping the developer constant the operators know exactly the amount of contrast they will receive on the negative, then if they want more, they have to light for it. This method gives the photographer exactly what is shown on his ground glass and does not leave it to some employee in the laboratory to guess what he is trying to get.

Like any other kind of work, the most modern equipment, such as we have here, is a great help. Take, for instance, our dryer, which was imported from England. It is chromium plated, heated by a one-inch copper water jacket, fed with a gas flame, and controlled by a thermostat, which keeps the heat regular. One hundred and twenty-five prints are dried in sixteen minutes,

whereas with the old method of ferrotype tins that number of prints required at least an hour and fifty minutes to dry. However, the cost of the machine makes its use prohibitive in many places.

I have been devoting some time to taking stills in color, with the idea of making color separation negatives on a single shot, three negative camera. From these three negatives it is hoped that the engraver may be able to make color prints on a par with the other photographers who are working in color. By this method it is believed that much valuable time can be saved by eliminating the color guide print.

### BRIDGE PHOTOGRAPHY

Peter Stackpole, well-known photographer of Oakland, California, has been making a complete photographic record of the construction of the San Francisco-Oakland Bay bridge. Many of his pictures have been reproduced in newspapers and magazines, and have been on display in various photographic exhibits. All who have seen Stackpole's bridge pictures marvel at the wonderful quality and artistic interpretation revealed.

Climbing the "cat-walks" of various uncompleted sections of the bridge is in itself no easy—nor safe—task. When a camera is taken along, the danger is doubled. Stackpole uses a Leica camera exclusively because, after various tests, he found it the most satisfactory camera for his type of work. Its small size, compactness, ease and quickness of operation, and assuredly of results makes it invaluable. A larger camera would be a nuisance when balancing one's self on slender girders, or crouching in an uncomfortable and dangerous spot in order to get just the right camera angle. The Leica is merely tucked in a pocket, leaving both hands free. Even in use its small size permits many shots to be secured which otherwise would be utterly impossible.

Peter Stackpole has a most complete record of the bridge job, and freely admits that the quantity and quality of his collection is due to a very great degree to his use of the Leica. He briefly explains his work with the Leica in the November issue of *Leica Photography*, the monthly magazine issued by E. Leitz, Inc., 60 East 10th St., New York City. A copy of this issue, together with various literature telling the complete story about the Leica, may be obtained by writing, requesting it.

## ROCK-STEADY PICTURES WITH THIS NEW EYEMO TRIPOD

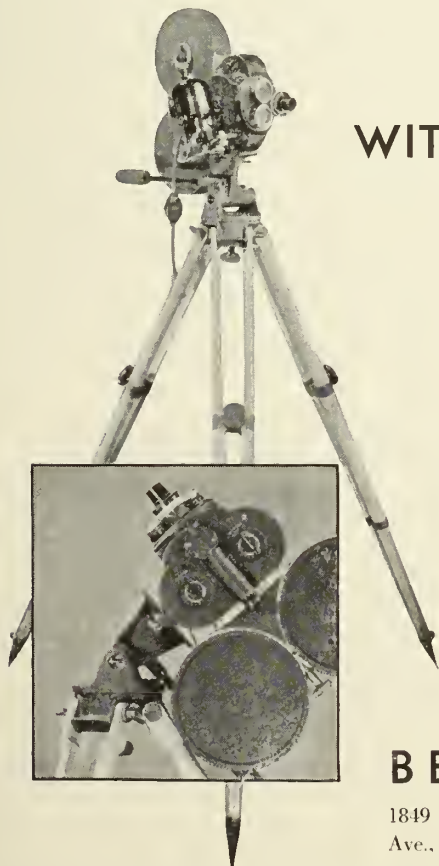
● Hand-crank at maximum speed if you want to—and in a 50-mile wind. Your Eyemo won't budge when mounted on this new special Eyemo Tripod that weighs so little, yet stands so rigidly. Pan and tilt are smooth as silk. Tilts straight down. Uptilt 60° without 100-ft. magazine, 45° with it. Single-gear quick-action leg clamps and steel spurs. 36-inches closed, 72-inches extended.

Have you seen the new Eyemo with motor and magazine? It opens up a whole new field of usefulness . . . and still it has that same portability that is its claim to undying fame among explorers, news men, scientists.

Write for complete literature on Eyemo and its new Special Tripod.

## BELL & HOWELL COMPANY

1849 Larchmont Ave., Chicago; 11 West 42nd St., New York; 716 North LaBrea Ave., Hollywood; 320 Regent St., London (B & H Co., Ltd.) Established 1907.



# INTERNATIONAL CLASSIFIED ADVERTISING

Brings results—Rates 45 cents per line—minimum charge one dollar per insertion. For Rent—For Sale—Wanted—For Exchange, etc.

## FOR SALE OR RENT—CAMERAS

**FOR SALE OR RENT**—Mitchell and Bell & Howell silenced cameras, follow focus. Pan lenses, free head, corrected new aperture. Akeley, De Brie, Pathe, Universal, Prevost, Willart, De Vry, Eyemo, Sept, Leica. Motors, printers lighting equipment. Also every variety of 16 mm. and still cameras and projectors. B & H Cameras with old type shuttles silenced \$150. Everything photographic bought, sold, rented and repaired. Send for our bargain catalogue. Hollywood Camera Exchange, 1600 Cahuenga Blvd. Phone HO. 3651. Cable, Hocamex.

## FOR SALE—CAMERAS AND EQUIPMENT

**REAL BARGAINS** in 16 and 35 mm. movie equipment and still cameras. Newest types cameras and projectors in all popular makes. Save money on film, lights, lenses and all essential accessories. Our 36 years of experience stands back of every sale. Before you buy, send for our new bargain booklet. Burke & James, Inc., 223 W. Madison St., Chicago.

**FOR QUICK SALE**—Motor Driven, Interview Model, Debie with 40, 50 and 75 mm. lenses, sun shade matte box with iris, 6 magazines in case, 10 aperture effect mattes, Debie Tripod, motor speed control, everything COMPLETE. This is a beautiful camera outfit. PRICE FOR QUICK SALE \$400. See it at AKERS CAMERA COMPANY, 7414 Santa Monica Blvd., Hollywood. Phone HE-8183.

**MITCHELL CAMERA**; Mitchell & B. & H. Magazines; Mitchell Tripods; Cooke Lenses—mounted and unmounted; Duplex Printer; Magazine and Accessory Cases; and other miscellaneous equipment. Ed Estabrook, 430 No. Flores St., Hollywood. OR. 5003.

**BELL & HOWELL** and Eyemo Cameras, Lenses, Magazines, Tripods, Moviolas, Splicers, all kinds of Sound and Laboratory equipment. Eastman and Dupont spliced negative, tested and guaranteed, 2½¢ per foot, on daylight loading rolls, \$2.75. Inquiries invited. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood.

**TWO AKELEY CAMERAS**, modern studio equipment, late models, full range of lenses. Prices \$850 and \$950. Camera Supply Company, Ltd., 1515 North Cahuenga Blvd., Hollywood.

## FOR SALE—SOUND RECORDERS AND EQUIPMENT

**SOUND TRUCK**—Variable area—the only variable area independent sound truck in Hollywood. This truck cost \$20,000 to build. Has been in steady feature production operation for a year and a half. Delivers PERFECT SOUND. Reason for sale, owner is going into another business and desires to liquidate present assets quickly. Price ONLY \$7,500. Demonstration to reliable parties. ACT QUICKLY. AKERS CAMERA COMPANY, 7414 Santa Monica Blvd., Hollywood. Phone HE-8183.

**FOR SALE**—DeVry sound on film. Used twin unit—Portable 35mm. indirect feed 500 watt projectors, 15 watt amplifier and speaker, complete \$395.00. Used 35mm. single unit. 500 watt projector and 15 watt amplifier, complete \$195.00. One 16mm. outfit—DeVry demonstrator, 750 watt projector, 7 watt amplifier, complete \$295.00. Used 16mm. sound on disc Cinetone complete, amplifier and speaker, \$70.00. 35mm. sound on disc 33½ r.p.m. complete less speaker, \$75.00. DeVry silent 35mm. 500 watt projector \$65.00. DeVry 35mm. camera four speed F3.5 lens \$75.00. WESTERN MOVIE SUPPLY, INC., 254 Sutter St., San Francisco.

**ART REEVES**, latest model 1935, double system sound recording installation, factory guaranteed, Automatic Speed Control Motor, Twin Fidelity Optical Unit, Bomb microphone, the only genuine, modern, workable ArtReeves equipment for sale in Hollywood outside factory. Price, complete in every detail, \$2,400. Slightly used ArtReeves sound equipment, complete, \$1,800. CAMERA SUPPLY COMPANY, LTD., 1515 No. Cahuenga Blvd., Hollywood.

## FOR SALE—SOUND PRINTERS AND EQUIPMENT

**3 BELL & HOWELL FIVE-WAY SOUND PRINTERS**, Motor Generators, panel control boards, Duplex Printer, specially adapted for duping. Sound and silent Moviolas; Educational Blimp and Dolly; Bell & Howell Splicers, Title Board with lathe bed; Bell & Howell Silent Cameras, Bell & Howell Camera Motors, Bell & Howell high-speed gear box; Mitchell and Bell & Howell Friction Head Tripod; lenses of all types, speeds and focal lengths. Above equipment used, but in perfect mechanical and optical condition at bargain prices. Hollywood Camera Exchange, 1600 N. Cahuenga Blvd., Hollywood, Calif. Cable address HOCAMEX.

## CAMERA REPAIRING

**BELL & HOWELL** cameras with old type shuttles silenced, \$150. Hollywood Motion Picture Equipment Co., 645 No. Martel Ave., Hollywood.

## FOR SALE—MISCELLANEOUS EQUIPMENT

**VERY POWERFUL FLOODLIGHTS** of new design. Will burn through a 1000 W. Rifle with Cable—\$5.00. With 12 foot collapsible Stand, \$22.50. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

**SEVERAL HOLMES PROJECTORS**, 35 mm., excellent condition. Full Guarantee. Prices \$75.00 to \$95.00. Camera Supply Co., Ltd., 1515 Cahuenga Blvd., Hollywood, Calif.

## WANTED TO BUY

**WANTED**—400 ft. Mitchell magazines, one Mitchell High Hat, one Mitchell motor adapter. Box JB, International Photographer.

**MOTION PICTURE**—Still Picture—Laboratory and Cutting Room Equipment—Lenses—Finders—Tripods. Highest prices paid. CONTINENTAL FILMCRAFT, 1611 Cosmo St., Hollywood, Calif.

## POSITION WANTED

**DO YOU WANT A CAMERAMAN** who is an expert on studio production; or an expedition cameraman who knows every corner of the world; or a cameraman who thoroughly understands the making of industrial pictures; or an expert newsreel photographer; or an expert color cameraman? A limited number of cameramen, backed by years of experience, are available. Write stating your requirements and we shall be glad to assist you in choosing the kind of cameraman you want. INTERNATIONAL PHOTOGRAPHER, 1605 North Cahuenga Ave., Hollywood.

## MISCELLANEOUS

### THE INTERNATIONAL PROJECTIONIST

**THE INTERNATIONAL PROJECTIONIST**, a monthly magazine published in the interests of the projectionist. Interesting, instructive. Yearly subscription U. S. and possessions, \$2; foreign countries, \$2.50. James J. Finn Publishing Corp., 1 West 47th St., New York.

**BUYERS READ** these classified advertisements as you are now doing. If you have something for sale or exchange—advertise it in these columns. THE INTERNATIONAL PHOTOGRAPHER, 1605 No. Cahuenga Ave., Hollywood.

**COMPLETE COURSE IN FLYING**—If interested in aviation, see Roy Klaffki, 1605 North Cahuenga Ave., Hollywood.

**WANTED**—To know of the whereabouts of motion picture relics, documents, or equipment of a historical nature for Museum purposes. Write Earl Theisen, care of International Photographer, 1605 Cahuenga Ave., Hollywood.

**THE NEW YORK PUBLIC LIBRARY**, Office of the Director, New York City, would like to procure the following old issues of INTERNATIONAL PHOTOGRAPHERS—all of 1929; January to October of 1930; and November and December for 1931. It will be appreciated if anyone having these numbers will communicate with us or with R. J. Lingel of the New York Public Library.

For the Most Authentic  
Technical Information  
About the Motion Picture  
Industry Consult—

International  
Photographer

Order Your Copy Now!

\$2<sup>50</sup> A YEAR

IN THE UNITED STATES

Name.....

Address.....

City.....State.....



## THE DESIRABILITY OF INCREASING THE MAXIMUM SHUTTER OPENING ON MOTION PICTURE CAMERAS

By FRED WESTERBERG

The two tables on shutter operation shown below have been designed to show among other things the desirability under present conditions of increasing the maximum shutter opening on standard motion picture cameras from the present value of 170° to a value of 240°.

Take for instance the matter of compensating for changes in the camera speed. What could be simpler than the values given in the first column? 240° at 24 speed, 160° at 16 speed, 120° at 12 speed, etc. This simplicity existed at one time when the normal camera speed was only 16 pictures per second. Now that the camera speed has been increased to 24 pictures per second the logical development is for the shutter opening to be increased in proportion.

The same thing is true from the standpoint of exposure. In order to compensate for the increase in camera speed the lens stop under present conditions has to be increased for example

from F3.5 to F2.8, thus nullifying to a great extent the gains that have been made in the way of faster lenses. Increasing the shutter to 240° simply means that an exposure time in the neighborhood of 1/35th of a second will be maintained as in the days of silent pictures.

The change to a larger shutter opening would be of benefit in still another direction. The interval between exposures would be decreased thereby tending to give smoother action on the screen.

Camera manufacturers are undoubtedly aware of the advantages in increasing the maximum shutter opening and would have made the change before now if the problem was merely one of altering existing equipment.

The knowledge however that certain cameras do exist with larger shutter openings and that cameramen desire this feature should serve as a stimulus to further efforts on the part of those manufacturers whose cameras are in general use.

### CAMERA SPEED—SHUTTER COMPENSATION

#### SHUTTER VALUES REQUIRED TO COMPENSATE FOR CHANGES IN THE CAMERA SPEED

Camera Speed in Pictures Per Second	EXPOSURE TIME IN FRACTIONS OF A SECOND						
	1/36	1/48	1/72	1/144	1/38	1/51	1/96
	SHUTTER OPENING IN DEGREES REQUIRED TO MAINTAIN CONSTANT EXPOSURE TIME						
96	.....	.....	.....	240	.....	.....	.....
72	.....	.....	.....	180	.....	.....	.....
64	.....	.....	.....	160	.....	.....	240
48	.....	.....	240	120	.....	.....	180
36	.....	.....	180	90	.....	.....	135
32	.....	240	160	80	.....	.....	120
24	240	180	120	60	230	170	90
22	220	165	110	55	211	156	83
20	200	150	100	50	192	142	75
18	180	135	90	45	173	128	68
16	160	120	80	40	153	113	60
14	140	105	70	35	134	99	53
12	120	90	60	30	115	85	45
10	100	75	50	25	96	71	38
8	80	60	40	20	77	57	30
6	60	45	30	15	58	43	23
4	40	30	20	10	38	28	15
3	30	23	15	8	29	21	12
2	20	15	10	5	19	14	8
1	10	8	5	3	10	7	4

### SHUTTER OPENING—EXPOSURE TIME

#### EXPOSURE TIME AND THE INTERVAL BETWEEN EXPOSURES OBTAINED AT VARIOUS DEGREES OF SHUTTER OPENING

Shutter Opening in Degrees	Shutter Interval Between Exposures in Degrees	Relative Interval Between Exposures Compared to Exposure Time	CAMERA SPEED IN PICTURES PER SECOND			
			24		16	
			Exposure Time	Interval Between Exposures	Exposure Time	Interval Between Exposures
270	90	.33	1/32	1/96	1/21.4	1/64
260	100	.38	1/33	1/87	1/22.1	1/58
250	110	.43	1/35	1/78	1/23	1/52
240	120	.50	1/36	1/72	1/24	1/48
230	130	.56	1/38	1/66	1/25	1/44
220	140	.64	1/39	1/62	1/26	1/41
210	150	.71	1/41	1/58	1/27.5	1/38.5
200	160	.80	1/43	1/54	1/29	1/36
190	170	.90	1/46	1/51	1/30.4	1/34
180	180	1.00	1/48	1/48	1/32	1/32
170	190	1.12	1/51	1/46	1/34	1/30.4
160	200	1.25	1/54	1/43	1/36	1/29
150	210	1.40	1/58	1/41	1/38.5	1/27.5
140	220	1.57	1/62	1/39	1/41	1/26
130	230	1.77	1/66	1/38	1/44	1/25
120	240	2.0	1/72	1/36	1/48	1/24
110	250	2.3	1/78	1/35	1/52	1/23
100	260	2.6	1/87	1/33	1/58	1/22.1
90	270	3.0	1/96	1/32	1/64	1/21.4
80	280	3.5	1/108	1/31	1/72	1/20.6
70	290	4.1	1/124	1/30	1/82	1/19.8
60	300	5.0	1/144	1/29	1/96	1/19.2
50	310	6.2	1/173	1/28	1/115	1/18.6
40	320	8	1/216	1/27	1/144	1/18.0
30	330	11	1/288	1/26.2	1/192	1/17.4
20	340	17	1/432	1/25.5	1/288	1/16.9
15	345	23	1/576	1/25	1/384	1/16.7
10	350	35	1/864	1/24.7	1/576	1/16.4
5	355	71	1/1728	1/24.4	1/1152	1/16.2

## Lighting Problems of the Commercial Motion Picture Producer

(Continued from Page 3)

equipment in the lighting field that is doing much to lessen the lighting "headaches" in the business motion picture industry.

Chief among the benefactors of us commercial fellows is Art Reeves, whose "Reeves Lite" has helped us out of many a tight hole. And that can be taken literally, too, because the "Reeves Lite," constructed as it is of an extremely lightweight material, can be handled with comparative ease, and banks of them can be placed in nooks and corners that would be impossible to cover with the larger type of equipment. The style of reflector used permits, with ordinary photoflood globes, the pouring of a sufficient quantity of light to meet the requirements of any ordinary scene, and in many cases extraordinary scenes.

Let me cite a specific instance: We recently completed the filming of a four-reel dialogue dealer service talking motion picture that required the lighting of a grocery store set. Our working space was of such limited proportions that at best we would have been able to crowd in say two or three ordinary studio size

"inkys." These would hardly have been sufficient for our requirements. We used the "Reeves Lite" instead and with no trouble at all placed twenty-four of them on the scene.

Due to the ingenuity of Cecil Wright, the cameraman, in directing the placing of these lights, our photographic results were satisfactory in every respect. We were able to get what you might really call major studio quality in our lighting.

We were able to get back lighting, top lighting, direct lighting and even in some cases were enabled to convert some of these lamps to the purposes of a "baby" spot.

What more could any commercial producer ask?

As the old bromide goes, "The proof of the pudding is in the eating," which we might paraphrase into "The proof of the lighting is in the picture," and we got that proof in highly favorable comments from the customer who pays the bill when he saw his picture projected on the screen. And to us, that rhapsody—that bill-paying customer—is the court of last resort.



# CINEMA CARONI

By ROBERT TOBEY



(With sauce for those who like it.)

## HOLLYWOOD HONEYMOON

(A novel novel of a thousand and one nights in a daze)

By R. THRITIS

Cast of characters, with a little of the story thrown in:  
Perriwether Murgle, press-agent extraordinary for

Lili Liverblossom, the great cinema star, is carried off across the desert by

Willy Nilly, a great Bald Eagle. When Willy gets tight Perri has to pick him up and fly to the Eagle's lair with him. As we pick up the tale, we find them nearing the Eagle's eyrie.

### CHAPTER XIII.

#### What Has the Sand Been Dune?

Perri nudged the Eagle. "Pull yourself together now, Hot Shot," he said. "Your wife is waiting for you."

Willy Nilly gasped in dismay. Quickly he reached in Perri's pocket and pulled out a pair of dark glasses. "Nelly'll never know me in these," he muttered.

Shortly they reached the Eagle's lair. With a mighty heave Perri lifted Willy across the threshold, and fell exhausted on the hearth; if I may call them, respectively, threshold and hearth.

Willy, a little pale around the gills, rose awkwardly to his feet. He cleared his throat and addressed his wife. "Lady," he said ingratiatingly, "I am here in the interest of yourself, your family, and your children. Do you carry Accident Insurance, with special Sickness Benefits? Do you realize how many thousands of Eagles each year fall out of their nests? Did you ever stop to consider . . ." His voice trailed off, thin and tremulous. Mrs. Nilly was fixing with a cold malevolent gaze.

"Willy," she screamed, "take off those spectacles. You hear me, Willy!"

Willy took off the dark glasses. "How did you know me, Nelly?" he asked, abashed.

"I'll show you," shrieked Nelly, leading with a quick left-and-right to Willy's craggy eyes. In two minutes Willy looked as if he had put his dark glasses right back on again.

"Now who's this creature that brought you home? I suppose you expect me to get dinner for him," said Nelly, indicating Perri, who was busy scraping the label off the bottle he and Willy had recently emptied. Perri had never been able to fly before, and he was taking no chances on forgetting the name of the brand.

"This is Mr. Murgle," said Willy. "He's from Hollywood. I did hope you could scare us up a snack," he added apologetically.

"Scare up a snack!" shrieked Nelly. "All we have left in the house is lair-cake. We've been living on that ever since you left. Now get out and rustle up a little grub. Before I make a snack out of your friend here," she added menacingly.

"All right," grumbled Willy. "What'll I get for us to eat? I could pick up a couple of trout from the river across the way, I suppose."

"How about some nice tender snakes," put in Nelly. "I haven't had a good piece of snake-meat for weeks."

Perri shuddered. Willy said, "There you go again. You know I don't like snake-meat, and the children won't touch it. I've told you a dozen times . . ."

"Shut your big mouth," snapped Nelly. "Snake-meat is delicious. Isn't it?" she asked turning suddenly to Perri.

"W-e-e-ll," said Perri cautiously. "I sort of prefer fish. Possibly just because I was born on Friday," he added deprecatingly.

"You see, Nelly!" said Willy triumphantly. "I don't know what's the matter with you. You must have picked up your love of snakes from your grandfather. I always thought he acted like a Heel. That's short for *Helotarsus ecaudatus*," he said to Perri. "You know, the nasty African eagle that eats snakes and lizards."

He looked at his wife and shuddered delicately. Then he turned to Perri. "I'll get us some fish," he said. "And I'll pick up an old snake for her."

With these words he was off. Perri watched him weave majestically out of sight in the distance. After a little time he turned toward Mrs. Nilly, who seemed strangely quiet. As Perri caught her gaze, she looked quickly away. She had been watching him

covertly out of the corner of one eye, and there was a peculiar glint in it.

"Er," said Perri, more to make conversation than anything else.

"Nice little place we have here, don't you think?" asked Mrs. Nilly, sidling over toward him. Just at that moment Willy was thinking that big twigs were devilishly uncomfortable things to use for flooring, but he remained silent.

Suddenly Nelly gave a short hop and skip, and was right beside Perri. She looked up at him coyly. "You're such a strong, silent man," she cooed at him. "But you can't fool me. I know you Hollywood fellows."

She turned to the two children. "You children had better take a little walk," she said. "I have some things I want to talk over with this gentleman."

(What has come over the Eagle's wife, that she is making up to Murgle this way? What can Perri do about it? Will the Eagle return at the wrong moment? And what has Lili been doing all this time? She hasn't been letting any grass grow under her red-lacquered toe-nails, to answer the last question first, and who's to stop me? See next month's magazine for the startling answers to the rest. Order YOUR copy now. The others may be burned up.)

### POLITE SURPRISE DEPT.

An announcer on a recent radio broadcast, enthusiastically describing the super-cast in the Max Reinhardt production, "Midsummer Night's Dream," in clear, ringing tones proclaimed that we would all be thrilled with "Mickey Rooney as Shakespeare's 'Puck,' Frank McHugh as Shakespeare's 'Quince,' Joe E. Brown as Shakespeare's 'Flute,' and James Cagney as Shakespeare's 'Bottom.'"

#### The complete Shakespeare.

THE MACARONI BOWL, by the Shovel Boys (They dish the dirt). \* \* \* Fred Astaire spotted buying tickets for current showing of "Broadway Melody of 1936." Must be getting a line on Eleanor Powell. That gal is worth a line of any man's type. \* \* \* The Three Stooges returned last month from a six-months personal appearance tour. Moe Howard says you just can't get away from the influence of the motion picture industry. In a letter Moe got from his wife, she wrote, "I had a nightmare last night, and it was in Technicolor!" \* \* \* Manager of Roxy's Theatre in New York wrote little Edith Fellows asking her for a nasty picture of herself, preferably one sticking her tongue out. Wanted it for lobby display in connection with current showing of "She Married Her Boss." Seems all Edith's pictures were too sweet. \* \* \* One of our bigger shots is fussing and fuming about, asking for a change in director and chief cinematographer on the picture in which she is star, and which is already in production. She has a certain director and cameraman picked out. They merely directed and photographed the last two Grace Moore vehicles. \* \* \*

Again this year Sol Lesser, with the help of several of his conferees in the industry, got the fathers-and-sons of the motion picture bizness together at a big barbecue on the Uplifters' Ranch out Santa Monica way. And really the family life in the good old game must be tremendous. \* \* \* After a savory breakfast, which was barbecued in studio manner (n. b. not barbecued) speeches were in order, and excellent. \* \* \* Among those to give out were Jack Warner, Dr. Attilio Giannini, Sol Lesser, Joe E. Brown, and Vince Barnett. \* \* \* Joe E. Brown, the funny man, gave the most serious speech of all. Vince Barnett couldn't do his daily gag, and palmed off a big 250 lb. youngster as his son. Vince weighs about 120. \* \* \* A very funny play was staged, dated as if in 1945; and sons of the producers pretended they had taken over the business, much hilarity resulting. \* \* \* After eats and spiels, bunch went over to the ball park and staged a crazy soft-ball game. Fathers played the sons. For a change. \* \* \*

The latest craze in radio, it is reported, is the gentle pastime, as yet unnamed, which we will call Outdoor Ask-Me-Another. This little ether novelty is already vieing with amateur hours on the air. To be more explicit for the benefit of the uninitiated, it seems a couple gents clutching a microphone ankle out into any given crowd and brace themselves firmly. The nether end of the microphone is hooked into a national network. The gents begin to ask questions of the crowd around them; any questions that occur to them. "Do you start to read a book in the middle?" may be the first question. Or, "What side do you sleep on, and do you know why?" The renowned ingenuousness of Homo Sap takes care of the rest.

They get some side-splitting answers.

But Outdoor Ask-Me-Another is old stuff. The picture business started that when they first began to make sound pictures. Every time a movie company went out to shoot exteriors they had to put a mike out in the middle of a curious crowd.

They picked up some side-splitting questions.

### KNEECAP REVIEWS

(No space left on my thumbnail)

"THE GAY DECEPTION." An excellent story, superbly directed, acted, and photographed. In another of those mythical-kingdom romances, The Gay Lederer is so charmingly real as a prince who has tired of princery and decides to study hotel management incognito, and France Dee is so devastatingly beautiful as the young stenographer who puts on the dog for a month in one grand splurge with her sweepstakes winnings, that you have to forgive their respective a: foolhardiness and b: foolhardiness. Much credit must go to the director of this epic, for if the pitch of the picture had been lost for just one awful moment the whole thing would have been a shambles. How Lederer can keep up his air of gaiety and nonchalance throughout picture after picture when he really is such a serious young man, I cannot see. I can never make up my mind whether to be true to my idolatry of Frances Dee or to desert her for Anita Louise and Rochelle Hudson. Frances looked even more lovely than usual in this, which is quite some lovely, for which thank Cinematographer Leo Tover, who did as well by the rest of the picture too.

"THE BIG BROADCAST." A great show, even if it isn't a picture. Studio hired a spider, spider spun thread, they called the thread a story and hung on it some of the most brilliant radio and picture talent they could find in their contract files. Jack Oakie was amazingly debonair and convincing as the Lothario of the air—Lochinvar the Great Lover. Talent t.n.t.m." kept cropping up a-hanging on that thin little thread, and the whole dish was liberally sprinkled with large doses of Burns and Allen, and than that more should never be needed.

#### \*Toonumeroustomention.

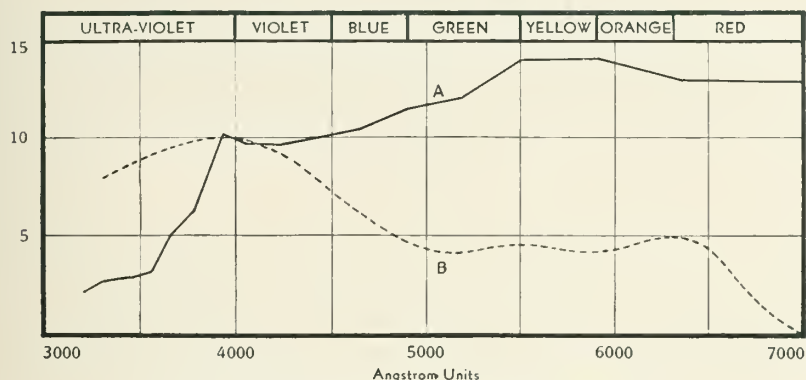
"WE'RE IN THE MONEY." Hilarious tale of two female process servers, played by that delightful, madcap pair, Glenda Farrell and Joan Blondell. A rollicking piece of film fare, but the whack of the slapstick came too often. Hugh Herbert never fails to bring home the laughs, but his part was very unreal and overdone in this. Dialogue in the picture is killing.

"CURLY TOP." Has all the things the public likes, and three Thespians I'm especially fond of. Based on revamped Cinderella theme, picture gives out some absorbing entertainment without too much strain. Cinderelluring Rochelle Hudson (whose smoldering beauty drives me to distraction) plays sister to Shirley Temple, who plays an orphan, is obviously the star of the picture, does excellently by her part, and has much neater curls than ever flourished in an orphanage. John Boles (I wish I were a gal so I could have a crush on him) is the Prince Charming who has so much money it would make the government's mouth water. The author chap tries to fool us now and then, but things just CAN'T go wrong. The audience has faith, and all ends well. Photography by John Seitz is gorgeous.



# BALANCE YOUR LIGHT

## AT THE SOURCE



Curve A—Energy Distribution from the new 40 ampere Studio Carbon Arc  
Curve B—Color Sensitivity of Supersensitive Panchromatic Motion Picture Film

**S**TUDIO lighting that is over-strong in yellow, orange and red must be supplied in excess of actual need in order to obtain the required strength of blue and green. The excess colors can be absorbed by filters to obtain balanced color tones on the negative but the excess heat is absorbed by the actors on the stage—much to their discomfort.

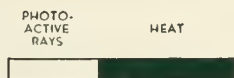
### NATIONAL MOTION PICTURE STUDIO CARBONS

PROVIDE STUDIO LIGHTING THAT IS BALANCED TO THE COLOR SENSITIVITY OF MODERN, HIGH SPEED, PHOTOGRAPHIC EMULSIONS

*There is no need for speed-absorbing color filters.*

They project less than one third as much heat onto the stage as other sources of studio illumination operated at the same photographic intensity.

NEW 40 AMPERE  
STUDIO CARBON ARC  
  
NEXT MOST EFFECTIVE  
STUDIO LIGHT



The new studio carbon arc lamps, using National Motion Picture Studio Carbons, are clean, quiet and steady in operation.

**THERE IS NO DETERIORATION WITH AGE  
THERE ARE NO UNTIMELY OUTAGES**

A high percentage of their radiant energy is concentrated within the most effective range of photographic sensitivity. They provide the maximum of COOL photographic light, BALANCED AT THE SOURCE for the requirements of the camera.

**MORE SPEED**

**LESS HEAT**

**A BETTER LIGHT  
FOR  
BLACK and WHITE**

**A NECESSITY  
FOR COLOR**

**NATIONAL CARBON COMPANY, INC.**

Carbon Sales Division, Cleveland, Ohio

Unit of Union Carbide and Carbon Corporation

Branch Sales Offices: New York ♦ Pittsburgh ♦ Chicago ♦ San Francisco



*Give  
this new light  
a trial* ✓

# QUALITY Where

# QUALITY Counts

● THE last step in motion-pictures...projection by the exhibitor...is all that counts from the public viewpoint. And cameramen have found that in this final step *Eastman Super X "Pan"* delivers higher photographic quality to the screen than any other negative material available. That is the ultimate reason why the great majority of feature productions are today being "shot" on Super X. Use it in your next picture.



EASTMAN KODAK COMPANY  
ROCHESTER, N. Y.

(J. E. BRULATOUR, INC., Distributors)



# INTERNATIONAL PHOTOGRAPHER

—HOLLYWOOD—

FIFTEENTH YEAR

DECEMBER, 1935

VOL. 7  
No. 11



5 CENTS  
A COPY

PAINTED BY LEWIS W. PHYSIOC

Through the Windows of Time—a Dream of Merry Christmas

MOTION PICTURE ARTS AND CRAFTS



# The REEL STAR

★ DU PONT NEGATIVE



DU PONT FILM MANUFACTURING CORPORATION

35 WEST 45TH STREET  
NEW YORK CITY

PLANT . . . PARLIN, N. J.

SMITH & ALLER LTD.

6656 .. SANTA MONICA BLVD.  
HOLLYWOOD, CAL.

Photographed  
by  
GEORGE  
FOLSEY



Photographed  
by  
RAY  
JUNE



Photographed  
by  
THEODOR  
SPARKUHL



THE **DU PONT** TRADEMARK HAS NEVER BEEN PLACED ON AN INFERIOR PRODUCT

REG. U. S. PAT. OFF.



# A NIGHT BEFORE CHRISTMAS



Loyal Himes catches old Winter at Lake Tahoe—and in all the world there is no more beautiful place to celebrate Yuletide. This is Mark Twain's old stamping ground.



# INTERNATIONAL PHOTOGRAPHER

MOTION PICTURE ARTS AND CRAFTS

Vol. 7

HOLLYWOOD, DECEMBER, 1935

No. 11

SILAS EDGAR SNYDER, *Editor-in-Chief*

EARL THEISEN and CHARLES FELSTEAD, *Associate Editors*

LEWIS W. PHYSIOC, FRED WESTERBERG, *Technical Editors*

HELEN BOYCE, *Business Manager*

A Monthly Publication Dedicated to the Advancement of Cinematography in All Its Branches; Professional and Amateur; Photography; Laboratory and Processing, Film Editing, Sound Recording, Projection, Pictorialists.



\$2.50

The International Photographer is out to double its circulation during our New Year beginning February, 1936, and it will be more than worth its subscription price of \$2.50 to anybody interested in photography and cinematography. Its price in Canada and Foreign Countries is \$3.00. A year's subscription to this magazine would be welcomed by anyone with a hobby for the camera. Remember, the price is

\$2.50

## CONTENTS

Front Cover Painted by Lewis W. Physioc

Frontispiece by Loyal Himes

PICTURES—INDOORS AND OUT	- - - - -	3
<i>By Karl A. Barleben, Jr., F.R.P.S.</i>		
THE ARCHAEOLOGY OF THE MOTION PICTURE. PART I.	- - - - -	4
<i>By Earl Theisen</i>		
THE STORY OF AMATEUR FILM STANDARDIZATION	- - - - -	6
<i>By F. Hamilton Riddel</i>		
MINIATURE CAMERA PHOTOGRAPHY	- - - - -	8
<i>By Augustus Wolfman</i>		
A SHIPLOAD OF BACKGROUNDS	- - - - -	10
<i>By Billy Boyce</i>		
HAL MOHR SPEAKS IN BEHALF OF CAMERAMEN	- - - - -	11
<i>By Herbert Aller</i>		
RECENT PHOTOGRAPH AND SOUND PATENTS	- - - - -	12
<i>By Robert Fulwider</i>		
CORRECT EXPOSURE ON REVERSAL KINEFILM	- - - - -	14
<i>By P. C. Smethurst</i>		
WHAT EVERY PHOTOGRAPHER SHOULD KNOW	- - - - -	16 and 17
<i>By Robert M. Parker</i>		
THE CINEMATOGRAPHER'S BOOK OF TABLES	- - - - -	18
<i>By Fred Westerberg</i>		
SHOOTING THE "QUINTS"	- - - - -	19
<i>By Ray Tash</i>		
THE NEW ORTHO-STEREO CAMERA, ETC.	- - - - -	20 and 21
THE CANDID MOVIE STILLS	- - - - -	22 and 23
TAKING THE MAGIC OF HOLLYWOOD TO MANILA	- - - - -	24
<i>(Contributed)</i>		
CINEMACARONI	- - - - -	27
<i>By Robert Tobey</i>		
CLASSIFIED	- - - - -	30
ACTING AND SPEAKING PHANTOMS	- - - - -	31
<i>Reprint</i>		

Entered as second class matter Sept. 30, 1930, at the Post Office at Los Angeles, California, under the act of March 3, 1879.

Copyright 1935 by Local 659, I. A. T. S. E. and M. P. M. O. of the United States and Canada

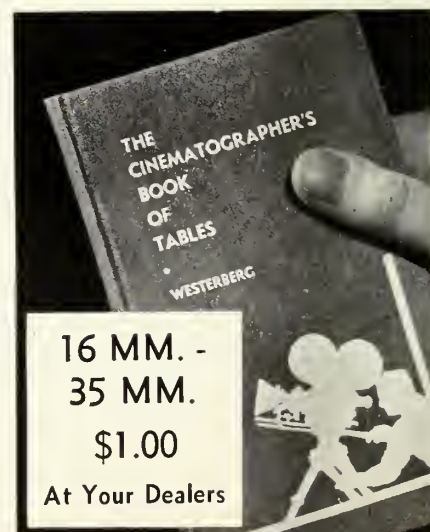
Office of publication, 1605 North Cahuenga Avenue, Hollywood, California  
Gladstone 3235

James J. Finn, 1 West 47th St., New York, Eastern Representative  
McGill's, 179 and 218 Elizabeth St., Melbourne, Australian and New Zealand agents.  
Subscription Rates—United States and Canada, \$2 a year. Single copies, 25 cents.

This Magazine represents the entire personnel of photographers now engaged in professional production of motion pictures in the United States and Canada. Thus THE INTERNATIONAL PHOTOGRAPHER becomes the voice of the Entire Craft, covering a field that reaches from coast to coast across North America.  
Printed in the U. S. A. at Hollywood, California



80 IPEU  
SERVICE ENGRAVING CO



16 MM. -  
35 MM.

\$1.00

At Your Dealers





By having the subject doing something, a more pleasing and natural snapshot results.  
—Leicaphoto by Josephine Barleben.



HERE are pictures and pictures—some good, some bad, some indifferent. Everyone with a camera makes pictures—that's the purpose of buying the camera in the first place—but it is surprising how few snapshotters actually record on their films what they intended to get. With many, the process of making a picture consists of aiming the camera in the general direction of the object to be photographed, closing the eyes, pressing the cable-release or shutter-release lever (as the case may be), and trusting to God that the film will preserve the scene for them. At least, most amateur snapshots look as if they were made in that manner.

Another common fault to be seen in nine out of ten amateur pictures is that the same formula seems to be used—posing Aunt Nellie or Brother Jake against an ugly brick wall, the sun shining full in their faces. A slight deviation from this ritual consists of getting the subject—or should we say victim,—out in the open. Unless care is exercised, a telegraph pole, a tree, or similar elongated object will be observed in the picture growing out of the subject's head, or, if horizontal, protruding from one side of the face. These are unfortunate experiences, yet to their owners these pictures serve their intended purpose nicely.

A little care, a little understanding, and really successful photographs can be produced. But what is a good picture? Any picture may be a good one, or a bad one, depending upon the point of view. The beginner who makes his first shot of his sweetheart will consider the result a wonderful picture, yet the expert will laugh at it. The beginner sees only the reflection of his effort and his sweetheart in the print. To him it is satisfying. The expert does not regard the print from the same standpoint. He sees that it is unsharp, the composition is all wrong, and vertical and horizontal lines are not parallel. The human equation is responsible for the judgment of a print. There is, of course, a set of standard rules by which photographers accord merits or demerits to a picture. Judges of photographs abound everywhere, and at any photographic contest they may be seen wrangling among themselves as to the values of the so-called best prints submitted. Apparently the laws of good picture-making are not as iron-clad or well understood as they might be, but the entire business of photography is, after all, a personal one, and for that reason unity in ideas cannot be expected.

Let us make pictures that please us—not the other fellow. If a picture is pleasing to you, be satisfied. Of course, if you make pictures for contests, exhibits, salons, advertisers, newspapers, magazines—in short, for other people and for professional or display purposes—they must conform to the definite rules which have been set down by those who have preceded us. But there are many intimate, personal pictures that can be made by the amateur or beginner which suit his purpose to a "T" in spite of their numerous technical and artistic defects. If they are for his own album, he should be happy with them if they express his thoughts or ideas. Nothing but dissatisfaction is gained by trying to please everybody.

One thing many amateur photographers could do with greater frequency is to make some indoor pictures. There is a wealth of interesting material right within the confines of their own home, although many seem to fear interior lighting as something very difficult. Beginners should understand that indoor lighting is easier to work with than out-of-door lighting, because it can be controlled in every way. This cannot be done with sunlight. A few photoflood lamps in reflectors are all that are required to make the most successful indoor pictures imaginable, even with a comparatively slow lens. A lighting unit such as the Kodaflector outfit, total cost \$5.00, makes a splendid starter. It consists of a metal stand, two sockets, each equipped with ample extension cord, and two thin metal reflectors. Place two photoflood lamps in the sockets, plug the cords into the nearest outlet in the room, and plenty of light can be obtained from extra photoflood lamps placed

in various wall, floor or table lamps, but these will be merely boosters for the main lighting of the Kodaflector in the majority of cases.

Most amateurs like to make portraits, and these are easily produced with the minimum of difficulty. One or two lighting units, such as have already been briefly described, are all that is needed. Miniature camera enthusiasts will offer the plea that their tiny negatives are too small for successful retouching, but it has always seemed to me that the importance of retouching has been over-estimated. Today the panchromatic film and more versatile illumination do much to eliminate the defects which years ago demanded retouching. A positive method of dodging this evil of retouching is in the use of a special soft-focus lens which robs the image of harsh lines and blemishes, yet leaves the natural character and expression of the subject intact.

A lens which has earned my highest praise in this direction is the recently introduced Thambar 90 mm, F 2.2 lens for the Leica. To go into a "rave" about this lens is easy, but I shall restrain myself. Suffice it to say that it produces unusually beautiful results and at the same time removes blemishes in a most startling manner. Readers interested in this lens should write to E. Leitz, Inc., 60 East Tenth Street, New York City, for literature. A most illuminating technical article, by Erich Kyrmsse, on the Thambar lens appeared in the October, 1935, issue of Leica Photography magazine. A reading of this article will result in a true understanding of this most unusual lens. A few examples of the results obtained with the Thambar lens are reproduced herewith.

All of which brings up a subject not commonly discussed—that of soft-focus. It should be understood that soft-focus is decidedly not out-of-focus. True soft-focus cannot be obtained by throwing the lens slightly out-of-focus, as is often thought. Shooting through scrim or similar material often helps to soften a scene, but nothing seems to have so far been able to replace a true soft-focus lens. There is a certain something in it that defies duplication.

While we usually associate soft-focus effects with close-ups and portraits indoors, it is by no means limited to these types of photography. Outdoor pictures, particularly of heads and faces, pictorial and atmospheric scenes and similar subjects lend them-

(Turn to Page 18)



Pictures in the home may often become priceless as the years go by. This picture was made with the aid of four Photoflood lamps.—Leicaphoto by Karl A. Barleben, Jr.



# The Archaeology of the Motion Picture

## IN THREE PARTS—PART I

Prepared for the Encyclopedia International Institute of Educational Cinematography, League of Nations\*

By EARL THEISEN

*Honorary Curator Motion Picture and Theatrical Arts, Los Angeles Museum*

**T**HE history of the motion picture dates back to prehistoric times. Primitive carvings on stone indicate that the idea of pictorially presenting motion has been with the van-guardians of the human race since Paleolithic times. In this obscure past, the ancients laboriously chiseled crude pictures on the walls of their caves and on pebbles, and in these pictures is evidenced the wish to show animation and to tell a story.

A notable example of motion depicted pictorially remains in a cave near Altmira, in Spain. On the walls of this cave, which is about 25,000 years old, is a well-defined picture of a boar having two sets of legs. The legs are in the position of a running stride. We can easily imagine the hairy Cro-Magnon artist who proudly exhibited his picture to the accompaniment of the pleased gruntings of the populace.

This cinema—it may be called that—was the archetype of the present picture in motion. It served that purpose for the populace of that time. It recreated events for them and was a spur to their imagination. The strong recaptured moments in the hunt. The weak timidly considered protective measures. And the genius critic "drew up" and "criticked." All vicariously lived and functioned. Such was the service pictures rendered to our barbarous ancestors.

"The Trotting Boar" picture, as well as other pictures of the Paleolithic period acted as the entering wedge in human affairs which was to pyramid in importance as culture developed. In effect, this wedge was like an inverted pyramid that presses its way into the scheme of things. As it enters, bromic ruts are filled and the contour raised to higher levels, giving to man-things a new outlook.

From Altmira of 250 centuries ago to present Hollywood is a far cry, but during the interim there has been an ever-present demand to show motion in pictures. In attempts to accomplish this, both science and art have had a common interest. The wedded bond of art and science in the cinema today has been the result of an ever-present purpose from the dawn of civilization. Leonardo da Vinci—one of a multitude of artists—tried to instill action and force of line in his paintings. He strived with canvas and paint toward the expressiveness of motion in a picture. Through the Camera Obscura, he tried in his gropings to bring scientific devices to his aid. It is true, the ideals and beauty of his canvases, as well as the canvases of other masters, equal and surpass the best of the popular commercialized movie; however, that does not mean they did not hope to extend the scope of their medium toward that encompassed in the cinema with its collaboration of sequences in directing the emotions in ascending force. As is evidenced by Da Vinci's desire for perfection of line, he knew of the value of a cinematic presentation.

### II.

#### The Shadow Shows: A Simulation of Motion in Pictures

In an historical survey of the ramified attempts to achieve the present cinema, the Shadow Show must

be considered. Though simple and crude, these shows were startlingly similar in essence and virtue to the later mechanical cinema. Herein the audience sat and viewed an animated shadow on the screen. The picturized events or folklore here shown had the cinematic power of approach to the emotions.

There is a wide difference of opinion concerning the origin of the Shadow Show. Some authorities contend they were first shown in India or Java, while others maintain they were introduced in China. This dispute, however, need not be considered, since we are primarily interested in their content as an indication of a wish for picturized form of dramatic interpretation. It will suffice to mention the general records agreed to by a consensus of opinions.

The Shadow Show probably dates back at least 5,000 years before Christ. At that early date, however, they must have been crude and in the form of shadows thrown upon the dwelling walls from the hearth fire. At first, it is logical to contend, the shadows would have been formed in a manner similar to the shadows of animals on walls shown to children today by their elders. This would have evolved to the use of silhouette cut-outs of heroes or animals. Then, with the passing of time, a dramatized narrative content was added.

They were prevalent in many varied forms in Asia and the Mediterranean countries before and during the time of Christ. In Java they were known as "Wayang." Here they were chiefly ceremonial or religious in nature and were part of every festival occasion. The operator or "Gamelong" sat before a fire and manipulated figures of gods, heroes or devils. These figures were 8 or 10 inches in height and were made of leather, wood, parchment or other available materials in primitively colored grotesque caricatures and characters. Instead of being manipulated by strings as a puppet, the movable parts of each shadow figure was moved by a long fiber handle. Usually one arm, or possibly both arms, were the only portions of the figure that were movable. Each figure was mounted on a handle and was moved as a whole before the bonfire which cast a moving shadows on a screen. The operator accompanied the show, or more properly the ceremony, with narrative monologue, while assistants furnished music with reed and gong instruments. The audience, squatted in the open air before the screen, viewed a ritualistic conflict of a traditional nature.

In China, too, it is probable that the Shadow Show had a spontaneous beginning and dates back into antiquity. However, the first authenticated tradi-

Phone GLadstone 4151

### HOLLYWOOD STATE BANK

The only Bank in the Industrial District of Hollywood  
under State Supervision

Santa Monica Boulevard at Highland Avenue



## By EARL THEISEN, Associate Editor

tion brought to light by Se-Ma Ts'ien, the Father of Chinese History in his annals "Schi Ki" dates to the Han Dynasty (140-87 B. C.). At 121 B. C. Schao Wong, a shadow player, made a shadow effigy of Emperor Wu's wife, who had died. Then he showed the animated shadow of the Emperor's wife along with shadow shows of the world of the Gods. This impressed Emperor Wu so much that he overwhelmed Schao Wong with gifts and with a title, "Marshal of the Fullness of Learning." Another tradition, which may or may not be correct, relates that Schao Wong was punished when the Emperor discovered that the shadow was made by an effigy and not by his wife.<sup>1</sup>

The shadow players of China at the time were charlatans or magicians of a sort. They were considered "Seers of Spirits." They knew the living were impressed and pleased when shown shadows of the departed in contact with the gods. The plays, which were presented chiefly in the homes, expressed the extant religious feeling and superstition. With the passings of time, they assumed a prominent place in the portrayal of traditions. During the period of 900-1200, records indicate fairy plays and traditional epics dating back to the "Three Kingdoms" (Shu, Wei and Wu) were presented in the market places. In 1102 fifteen "Bunden" (art or literary showing) were presented, six of them being shadow plays.

In Europe, the shadow play did not appear until later. Under the name of "Schattenspeile" they appeared first in southern Germany, where they constituted one of the most popular amusements. Their first appearance in France was in 1767. Some years later the noted Seraphin established them in his first theatre at Versailles on the site now occupied by No. 25 Rue de Satory. Here, in 1780, it became one of the social activities of ladies and gentlemen to attend his "Shadows of Changeable Scenes." In 1784, he moved into the newly completed galleries of the Palais-Royal. He continued his presentations until his death in 1800, at which time his nephew took them over. During 1844 they moved to the Boulevard Montmore, where the shows continued in favor until the closing of the theatre on August 15, 1870. They were revived about 1890 for a short time at the "Black Cat Cabaret" in Montmartre.<sup>2, 3</sup>

In the meantime the shadow show had undergone a transformation. Besides fairy tales, the farces of Punch and Judy, spiritual dialogues, dramatized lyrical poems and pageants had become the repertoire of the shadow players. Henri Riviere did much to improve the technique of presentation. Instead of cardboard or leather figures, he made figures of zinc. He introduced color in cut-out portions, added scenery, and increased the narrative and dramatic scope of the shadows. As many as twelve assistants aided him in creating elaborated effects. The lighting was furnished by oxy-hydrogen. At best their dramatic possibilities were limited, but it was a striving toward the facile cinema. In essence there was a similarity in these shadow shows to the present shadow play on the silver screen. It is not to the discredit of the Shadow Show operators that their medium had not the expressiveness of the photographic shadow of our time.<sup>4</sup>

### III.

#### Mechanical Aspects

Records do not indicate who first conceived the idea of mechanically showing pictorial motion; nor

do we know when scientists first concerned themselves with the problem. During the past 2,000 years the human stream has broken into ripples many times over the announcement of pictures in motion—ripples of interest that indicate how close to the hearts of men is this thing, the Motion Picture.

Through the slow-moving human stream many scientific men have reached upward toward the goal of wedding science and art. They have attempted by scientific application to reach the hungry senses with a medium of broader expressiveness than that of the printer or stage.

Kircher, Desvignes, Reynaud, Marey, Le Prince, Friese-Greene, and many, many others dreamed in mechanical terms of the things all men had in their hearts, but which individually none had the ingenuity to substantiate. Though they did not achieve their philosophic dream, their efforts were not lost. Those following in their footsteps benefited by their failures. After centuries the steel and celluloid of the Motion Picture is the tangible result of their dreaming.

The earliest record of a motion picture device dates back over 2,000 years. In *De Rerum Natura*, written by Titus Lucretius Carus, in 65 B. C., is a reference which evidently refers to a device for creating the illusion of motion by mechanical means.

"Do not thou moreover wonder that the images appear to move,

And appear in one order and time their legs and arms to use,

For one disappears, and instead of it appears another,

Arranged in another way, and now appears each gesture to alter,

For you must understand that this takes place in the quickest time."

Throughout literary history there are references to cinematic devices. According to Martin Duncan, who lectured on November 22, 1905, before the Society of Arts in London, there is a manuscript of 130 A. D. in the Bodleian Library of Oxford which mentions the phenomenon of the cinema, pictures in motion.<sup>4</sup>

Omar Khayyam, who lived during the latter quarter of the eleventh century and died within the first quarter of our twelfth century (1123 A. D.), mentions the phenomena of the motion picture in a device of his time in his *Rubaiyat* in (quatrain) LXVIII. According to the translation from the Persian by Edward Fitzgerald:

"We are no other than a moving row  
Of Magic shadow-shapes that come and go  
Round with the Sun-Illumined Lantern held  
In Midnight by the master of the show."

#### XLVI.

"For in and out, above, about, below  
'Tis nothing but a Magic Shadow-show  
Play'd in a Box whose  
Candle is the Sun  
Round which we Phantom  
Figures come and go.

In the Persian there occurs the word *Fanusi khiyal*, which is a magic lantern device that has figures painted around its interior. Though we do not know

<sup>4</sup>Bibliography, references and notes will be published at the end of the third installment of this paper.

# 16mm. The Story of Amateur Film Standardization 8mm.

## 9.5 mm.

By F. HAMILTON RIDDEL



THE average home-movie maker, who today enjoys the high quality and versatility of 16 mm., rarely realizes the immense amount of research and the many years of pioneering that ultimately contributed a satisfactory amateur film standard.

For all practical purposes, this standard was established when the Eastman Kodak Company introduced 16 mm. film in 1923. Until that year no real film gauge existed in the purely non-professional field of motion pictures.

Although for a great many years previous to 16 mm.'s introduction there had been many attempts to popularize motion picture making by the layman, trial and error methods had been of necessity the rule. There was good, even ingenious, equipment developed as early as the beginning of the present century. But the chief stumbling block to these very early developments, and to many subsequent ones, was a complete lack of standardization in film size. It was obvious that the professional 35 mm standard would not do for amateur motion pictures for two very good reasons—high cost and inflammability. On the other hand, it was imperative to duplicate, even improve, the other features of standard 35 mm and incorporate them in a satisfactory amateur film standard.

The problem which was presented can best be understood if we enumerate the essential specifications necessary in the establishment of a standard for amateur use.

**COST.** Since 35 mm film, costing approximately 10 cents per foot (from negative to positive print on the screen) and being projected at the prescribed rate of 60 feet per minute, made an average screen presentation a matter of several hundred feet of film, it can readily be seen such cost was prohibitive to the average amateur. A home-movie film must be afforded which, with less footage, could still record several minutes of action and at a price not far removed from that of still picture snapshots.

**ABSOLUTE SAFETY.** As most 35 mm film was presented under ideal safety conditions of fire proof booth and trained operator, the high inflammability of the film base was not a serious drawback. Obviously, however, an amateur film would not, could not in most cases, be so exhibited. The amateur standard **must** be a non-inflammable base film. Any doubt as to whether or not it was safe (as possible in 35 mm) must be dispelled; and like Caesar's wife, must be above suspicion.

**EDITING.** Movie making being what it is, to which would be added the variances of handling by a layman, made it most important the new film could be cut and re-assembled after exposure and not left in continuity of shooting. For the same reason there are rubbers on lead pencils, film must be cut and edited, no matter how carefully it was originally photographed.

**SIMPLIFIED PROCESSING.** Professional 35 mm involved the use of a negative which, after development, had many positive films printed therefrom. This required laboratory work, handling and processing at least two separate lengths of film, which was expensive. Amateur film usage, on the other hand, would usually require only a single print. Hence the reversal method of processing, already known but not often used in 35 mm, by which the same film exposed in the camera was chemically reversed into a positive for projection, must be further improved and made available to the amateur. Handling only a single strip of film, instead of two, would further cut costs.

**STANDARDIZATION.** An amateur film size must be adopted which, by mutual agreement as to basic qualifications, could be set up as an absolute standard for home-movie makers. Only with a set standard could amateur movies be popularized, and outfits exist without becoming obsolete due to varying film sizes.

It is natural that during the critical period of development of amateur movies, which even then the professional 35 mm was experiencing, there was an independence of design and action by inventors. While this was entirely as it should be, it did cause a chaotic mass of ideas as far as film size was concerned. Mutual co-operation in regard to a film standard for the amateur was virtually non-existent. Motion picture images were put on glass plates, on paper narrow and wide, on endless film belts, and on 35 mm in every conceivable way. Over such a rocky road of mediums and varying widths the present standard has had to travel to perfection.

Perhaps the earliest size produced was the split 35 mm. This

gave a film 17.5 mm in width. Perforation remained the same, but of course was on one edge of the film only. There were 32 frames, double the professional amount, to each foot of film.

Another variation employed 35 mm in its natural state. This film was exposed, however, so that two rows of frames ran the length of it, side by side. The equivalent of four feet of 35 mm professional screen time was obtained in every foot of film, by this idea.

It is altogether fitting that the great inventor, Thomas Edison, should have furthered the interest in home-movies with his contribution, the Edison Home Kinetoscope film. Edison employed a film only slightly less wide than 35 mm, having eliminated the usual side perforations of the latter. On this new film he placed three rows of frames, running full length of the stock, with perforations between the rows of frames. In projection, the first row of images was moved forward; the second, reversed; and the last moved forward again. The Kinetoscope film was safety type. Only library subjects, however, were available, as no camera was developed for making one's own films.

Probably the most ambitious amateur film to put in an appearance on the market was 28 mm. Developed in France by the famous Pathe Company, 28 mm had single rows of frames as in 35 mm, but perforation was dissimilar. The usual four sprocket holes were on one side only, while the other carried single holes. This latter departure was Pathe's method for automatically keeping the film in frame during projection, and also acted as a ready identification of the company's film product. The film base of 28 mm was safety non-flam. Although an excellent film, it was so near 35 mm size that costs were not materially reduced, and therefore its use was restricted to persons of means.

What appears to have been the first all around amateur size was that introduced by Movette. This film was 17.5 mm and on a safety base. Perforation holes were round, instead of square, there being two perforations per frame, each side of the image. Personal movies could be taken and shown, but Movette did not attempt to supply any library subjects. Movette's success, though not lasting, nevertheless was considerable, as witness special process laboratories which even today quote prices on reduction to 16 mm from old Movette 17.5 mm films.

Coincident with standardization of 16 mm there appeared one of the last attempts at a special amateur size, an endless belt type, with individual frames running spirally about it. While this film was most economical, it had one great drawback, as it could not be edited. The pictures had to be shown as they were taken, without benefit of titles or editorial changes.

Though there were additional developments going on among manufacturers, in many cases actual camera and projector models being ready for commercial introduction, which used certain size films already mentioned, when 16 mm appeared in 1923 these models were quickly abandoned and modified to accommodate the new standard, 16 mm. Such manufacturers have had good reason since to thank their lucky stars for these modifications, as time has proved the worth of the amateur standard. Since 1923 there has been a steady growth in home-movies and the list of available camera and projector models for 16 mm is endless.

About the same time of 16 mm's inception, Pathe made another attempt, this time quite successful, at introducing a home-movie size film, namely, the well-known 9.5 mm Pathex, which had gained considerable vogue in France. Approximately equal to 16 mm in frame area, Pathex differed in that its single perforations appeared in the center of the film between frame-lines.

**35mm. Eastman or Dupont**

Fresh Gray Backed Negative

Price 2½c per Foot

for

AMATEURS or PROFESSIONALS

**KINEMA KRAFTS COMPANY**

6510 Selma Ave. Hollywood, Calif. GLadstone 0276



Because of the economical aspects of 9.5 mm. Pathe film has enjoyed a large market in America.

As the depression forced issues in many other lines of industry, so it has also brought about new developments in the home film. The latest is 8 mm, born during the depression and a close relation of 16 mm. Now, while it may be presumed there is no end to amateur film sizes, it is well to bear in mind the fundamental fact that 16 mm is the established standard. 16 mm is an outstanding success in the home, in the school, and has even superseded 35 mm in many ways in industrial use. For the foregoing purposes, 16 mm is as much the standard as 35 mm is the standard in the theatrical field. And where 16 mm is not actually a competitor of 35 mm, it is a close ally, as note its widespread use in reduction prints made from 35 mm negatives. On the other hand, 8 mm, in view of economic conditions and in certain conveniences, has convinced many people it is the ideal home-movie size. Indeed, it well may be, for 8 mm provides almost every advantage of 16 mm, plus a further cut in costs.

As early as five years ago a most ingenious attempt was made by Kemco Homovies to reduce the cost of personal movies, via an 8 mm image. The method was most novel; rather than change film size, the camera and projector were designed to use 8 mm images from a standard 16 mm film. The projector was a combination machine, running either regular standard 16 mm or the special 8 mm images. However, only 8 mm images could be taken with the camera. Thus it was possible to show any existing 16 mm films on the projector, and henceforth, by possession of a Kemco camera, considerable reduction in film costs was effected by shifting to the 8 mm images. The mechanism of the Kemco was such that the film frame was exposed one-fourth at a time; 1-2-3-4 exposures being made consecutively on a single 16 mm frame area, and so on down the length of the roll. Thus a 100-foot roll provided the same screen time as 400 feet heretofore. The Kemco outfit caused quite a furor, but did not fare well commercially, due no doubt to the many intricate and complicated moving parts of camera and projector.

The 8 mm idea persisted. In 1932 the Eastman Kodak Company announced their practical solution of the 8 mm problem, the now very popular Cine-Kodak Eight. As in the case of standard 16 mm, the new film is processed by the reversal method. For camera use a 25-foot roll of special 16 mm is supplied, with three perforations, per frame, on each side of the film, instead of the standard two. This special film is twice exposed in the camera; first down one side, then reloaded and exposed down the other side. After processing, the film is split down the center and the resulting two film lengths are spliced together, end for end, making a continuous strip of 8 mm. Ready for projection, 8 mm frames are only one-quarter the size of regular 16 mm, and the film has perforations, because of splitting, on one side only. Thus by this novel system, 25 feet of negative becomes the equivalent of 100 feet of standard 16 mm in screen time.

The newest adaptation of 8 mm, at present writing, is the pre-split 8 mm film introduced this year by Bell & Howell Company. This reversal type negative comes in 30-foot rolls, already 8 mm size, with perforations on one side only. Hence its use in the Bell & Howell Eight camera, in the regular manner of 16 mm and of 35 mm, does away with the necessity of twice threading a same roll of film, and affords greater ease in handling.

Mention should be made here that the present time 8 mm is only offered in regular Panchromatic form. However, 8 mm is a comparatively new film, and it seems altogether likely that in the near future Super Speed Panchromatic and natural color emulsions will be available to 8 mm users. But we doubt whether sound-on-film will ever become a reality on 8 mm!

It is well to include in our discussions of the amateur standard the various refinements which have been added to 16 mm since its establishment in 1923. Such developments closely parallel those in the 35 mm field, and this is gratifying, for the amateur has at his command all the same materials as has the professional. First 16 mm stock was offered, of course, in what is now known as old Orthochromatic emulsion. Several years later regular Panchromatic was introduced. Several natural color films, employing the use of special filters for both camera and projector, were made available. Their chief exponent was Kodachrome. There being a growing demand, a 16 mm negative-positive system was offered which gave to the amateur all the advantages of professional processing. In 1931 Super Speed Panchromatic, latest and greatest of all black and white emulsions, made indoor movie making a pleasure. This year has brought Kodachrome, successor to old Kodachrome, and Dufaycolor in color films. These new natural color emulsions give truly natural life-like movies without the bother and the expense of special filters for either camera or projector. In the realm of sound 16 mm is steadily progressing. 16 mm sound-on-film has only one side of perforations; on the other, in their place, is carried the sound track. Special emulsions for sound recording have been made available, both for reversal and for negative-positive processing.

The dreams of the film pioneers have indeed become a realization in 16 mm standard.



Wind-tossed  
palms in  
Florida.

## CHRISTMAS CONTINUITY

**E**Y ALL means make a Christmas movie this year. Such a record of this day of holidays grows more valuable as the years go by, and will be an important addition to your home film library. And remember, there's no day like Christmas which affords such an excellent opportunity for filming many interesting scenes of the immediate members of the family.

Just a little thoughtful consideration beforehand will aid you greatly in making a Christmas movie. It is a mistake to plan an ambitious record and it is most desirable to avoid complicated scenes. In the average family you will most certainly run into trouble if you try to make the entire family "act," when they are much happier doing something else. Remember, the grown-ups are as happy over Christmas as the children; so make it easy for them and for yourself and film a movie with as little fuss and bother as possible. Then you, the cameraman, will have some time left to join in the fun of Christmas.

The accompanying continuity we trust will be of help in considering a Christmas film. It is not to be deemed a hard and fast script, nor one embracing all rules of motion picture production. Rather, we hope, it will act as an example of a simple continuity for a Christmas record, from which you will deviate to suit your own specific plans. Practically all the action of each scene is what actually occurs—that may be conveniently photographed—on Christmas day, and can be filmed without plaguing the family. Later, a few titles and some editing of your processed film will result in a subject which will please your entire family.

### Continuity

- Scene 1. Fade in. MEDIUM CLOSE-UP OF CARDBOARD SANTA CLAUS. (1 photoflood in reflector; F 3.5.)  
Across the cardboard Santa Claus is lettered: 1935.  
FADE OUT.
- Scene 2. Fade in. MEDIUM SHOT OF LIGHTED CHRISTMAS TREE. (1 photoflood in ceiling reflector, 1 photoflood in reflector on floor; F 1.9.)  
Starting at top of tree, slowly tilt down to tree base, showing Johnny with electric train, Mary holding her doll. Other toys are grouped around the children at tree base.
- Scene 3. MEDIUM CLOSE-UP OF CHILDREN AND TRAIN.  
(1 photoflood in reflector; F 1.9.)  
We pan camera as train, in operation, circles the track. Johnny in background, operating train transformer. Mary looks on.
- Scene 4. CLOSE-UP OF TRAIN IN OPERATION. (1 photoflood in reflector; F 3.5.)  
Train rounds curve, comes through tunnel and rushes at camera, goes around curve, exits from picture. Shoot this action several times.
- Title 1. MEANWHILE—IN THE MAKING.
- Scene 5. MEDIUM CLOSE-UP OF AUNTIE AT KITCHEN SINK.  
(1 photoflood in reflector; F 2.9.)  
Auntie is busy preparing dinner. As she washes celery she registers a happy mood.)
- Scene 6. CLOSE-UP OF COOKING POTS ON STOVE. (1 photoflood in reflector; F 3.5.)  
Steam is rising from under the lids of the covered pots.

(Turn to Page 26)





A deep yellow or orange-red filter produces interesting over-corrected effects.—Photographed by A. C. Elworthy.

**The Finishing Touch:** After the print has been processed and pressed, many photographers consider the job finished. For ordinary purposes this may be considered correct, but just as the importance of a tie to the well-dressed man, a few finishing touches to dress up a print means quite a bit to having it approach salon quality.

A simple means of doing this is to mount the print on a plain white Bristol board, or eggshell board. Any art store will have a few different types of mounting boards for the photographer to select from. The size of the mounting boards should be such as to allow a four-inch border on the top and sides, and about five and a half to six inches on the bottom. Mounting a print on a board may be a simple procedure, but nevertheless care should be exercised to obtain clean results.

Place the print on the board, arrange it properly, and then check with a ruler, otherwise after the print has been pasted down it may be found that it is crooked. For pasting the print the best material is rubber cement, which can also be obtained at any artist's supply store. Unlike ordinary mucilage, should any of the cement smear on the print or mounting board, it can easily be removed without injury to either. An artgum eraser is an excellent expedient for this purpose.

In using rubber cement, first apply a layer of the cement to the portion of the mount upon which the print is to be placed, and allow it to dry. The solvent for the cement is very volatile so that it will dry in a short time. Another layer of the cement is then applied to the back of the print, and that is allowed to dry. The print is then properly placed on the mount and a weight placed on it for a minute or two. The print will be pasted down perfectly flat.

Another means of imparting a handsome appearance to a print is to use a large size printing paper, such as 10x12 or 11x14 in., and have the actual print occupy a portion of the paper, leaving about a two to three inch border around the print. After pressing the print it can be left in this manner, the wide border acting as a frame. If the print is of a dark key its appearance can be improved by drawing a thick pencil or crayon line around it, about one-quarter inch from its edges.

Then again the print can be embossed. This enhancement can easily be imparted to a print. A form is cut about the same thickness as the print—an old print can be used for this purpose. The form should be larger than the picture, so that it will leave about a three-eighths inch border about the latter. The form is placed on a glass underneath which is a light, so that the print can be properly placed on the form. When the print (face down) has been arranged correctly, the emboss tool (which can be obtained at most any photographic dealer) is run about the print at the position where the edges of the form are located, thereby producing the die-sunk lines.

Before submitting prints to this treatment they should be slightly softened to obtain smooth die-sunk lines. To accomplish this, the backs of the prints are first moistened with alcohol (ordinary 70 per cent rubbing alcohol) and the prints placed under pressure for a few minutes. They are then ready for embossing.

**Developers for Warm Tones:** For many subjects, greater quality can be added to the print if it is of a warm brown tone. Some photographers have been desirous of obtaining such tones in their prints through direct development. The following formula used with chloro-bromide papers will produce tones ranging from red to black:

Adurol .....	60 gr.
Hydroquinone .....	60 gr.
Sodium Sulphite (dry).....	1 oz.
Sodium Carbonate (dry).....	365 gr.

## The Finishing Touch— Miniature Camera Photography— Lighting Units

Potassium Bromide.....	6 gr.
Water, to make.....	20 oz.

Use as follows to obtain various tones:

**Warm black:** Give the print normal exposure, use the developer full strength, and develop for 1½ minutes.

**Sepia:** Give the print 3 times normal exposure, dilute the developer 10 times, add 20 drops of 10 per cent potassium bromide solution, and develop about 5 minutes.

**Sepia-brown:** Expose the print 5 times normal, dilute the developer 15 times, add 60 drops of 10 per cent bromide solution, and develop for 10 minutes.

**Red-brown:** Expose 6 times normal, dilute the developer 25 times, add 100 drops of the 10 per cent bromide, and develop for 15 minutes.

**Red:** Expose 7 times normal, dilute the developer 30 times, add 120 drops of 10 per cent bromide, and develop 20 minutes.

Fix the prints in:

Hypo .....	4 oz.
Potassium Metabisulphite.....	½ oz.
Water, to make.....	20 oz.

The following Adurol formula is recommended to obtain warm prints with bromide papers:

Metol .....	130 gr.
Adurol .....	1 oz.
Water, to make.....	20 oz.

Dissolve and add gradually:

Sodium Sulphite.....	7 oz.
Potassium Carbonate.....	4½ oz.

Dilute with 15 times the quantity of water and add as much bromide as may be necessary to keep the whites clear.

**A Tip on Composing:** Many of us are in the habit of making a standard size print from all the negatives, such as 4x5 or 5x7 in. These prints are employed for general album size, and those which are outstanding are enlarged to a greater size. One of the main factors to the success of a print is the judicious choice of the proper portion of the negative to include on the print, and the 4x5 or 5x7 in. prints can be used to obtain the ideal composition. Cut two L-shaped strips of paper. The two sides of these strips should be a little longer than the sides of the print, such as for a 4x5 inch print each L-shaped strip would be about 4½x5½ in. Place both strips on the print so that they form a border about the latter. Now, by moving the strips in or out, as the case may be, the ideal composition can be obtained.

**Orange Filters for Enlargers:** Despite the fact that such filters are employed for focusing and composing directly on the sensitive paper, without affecting the latter, their use is at times abused. We have occasioned complaints from some amateurs that a specific filter used for this purpose fogged the paper. Investigation disclosed the fact that the paper was exposed to the light with aid of the filter for over two minutes.

For this length of time some makes of such filters may not be safe, but we must consider the fact that two or more minutes is a much greater time than is normally required to focus or compose a negative. To determine the maximum time which such a filter may be used with safety, strips of paper can be exposed to the filtered light for various times, half of each strip being covered with a piece of black paper. A note is made on the back of

# M P G

Reg. U. S. Patent Off.

THE MOST TALKED OF FINE GRAIN DEVELOPER ON THE MARKET. IDEAL FOR MINIATURE CAMERA FILM. NO MIXING. ONE QUART SOLUTION GOOD FOR MORE THAN A DOZEN FILMS. FULL INSTRUCTIONS WITH EACH BOTTLE. AT YOUR DEALERS AT \$1.25 A QUART. OR AT

**R. J. FITZSIMONS CORP.**  
75 FIFTH AVE. (Dept. B) NEW YORK CITY



## By AUGUSTUS WOLFMAN

each strip of paper of the time it was exposed to the filtered enlarger light. The strips are placed in the developing solution for the normal developing time; then place them in the hypo for about a minute, and take them out to bright light for examination. The strip on which half begins to show a light density is the time up to which it is safe to allow the sensitive paper to remain under the filtered light of the enlarger. Some photographers are finding a green filter better for this purpose.

**The Type of Paper and the Negative:** Generally soft negatives with delicate gradation call for the use of chloride or chlorobromide papers. Bromide paper is best suited for brilliant negatives. It is for this reason that chloro-bromide papers are best for enlarging for the photographer who is in the habit of using soft, high-speed emulsions.

**Filters for Snow Scenes:** Some photographers are of the belief that since snow is white, and trees, except the evergreens, are devoid of foliage, and therefore color, the use of a filter is superfluous for winter scenes. However, close observation will reveal that snow is not merely blank white, but reflects many delicate tints, and the use of a yellow filter would do much to obtain the proper gradation in snow scene negatives. Then again we must

remember that the filter is still necessary to obtain an interesting reproduction of the sky.

**Lighting Units:** The winter season provides a relatively small amount of daylight for outdoor photographic activity, but its long evenings open up many opportunities for "shots" by artificial light. Many amateurs have not tried such work, but may we say that there is no tangible excuse for this, for Photoflood lamps can be obtained for about 25 cents each.

If there is the question of the expense of lighting units, such thoughts can be dispensed, for the Photoflood lamps can be placed in the ordinary fixtures at home. However, lighting units enable the photographer to position the lights for the best effects, as well as direct the light rays to the subject, instead of allowing them to scatter in all directions. The least expensive of such equipment is the hand reflector. Excellent results can be obtained with this accessory, but hand reflectors will require the employment of assistants to hold them in the proper position. If possible the photographer should obtain regular lighting units, such as the Solite, Photoflood Spot, Willo, etc. Just as with the purchasing of a camera the photographer should buy the best lighting equipment that he can afford.

### Special Leica Camera Models

The Leica camera with its 30 to 36 exposures per loading may not entirely suit some photographers. Some want to make but one exposure at a loading while others have need to make 100 or more at a loading. In order to accommodate these extremes, E. Leitz, Inc., 60 East 10th St., New York City, supplied the "Oligo" Single Exposure Leica and the Model FF Leica.

The Oligo model uses tiny metal "plat holders" which will accommodate sections of 35 mm. film. A ground glass focusing screen and special Ibsor shutter are supplied. All standard Leica lenses may be used with this model.

In the Model FF the owner has sufficient film capacity to make 250 exposures without reloading the camera. Basically the Model FF is the same as the Model F excepting for the enlarged ends which accommodate film magazines holding up to 30 feet of film. Aerial, natural color, copy and record photographers often have a real need for such a camera.

These two special Leica models are offered along with the regular line of Leica Models D, E, F and G. In short, there is a Leica model to fit every need and every pocketbook. Why not visit your local dealer and see the versatile Leica models today?

Or, write to E. Leitz, Inc., for complete details in the form of interesting literature.

### New Type Sunshade for Leica Lenses

Because existing sunshades were not especially suited for use with the popular 50 mm. f:2 lens, the Leitz Works designed and put on the market a special shade which completely satisfies all possible Summar lens uses. This new shade is rectangular in shape, gracefully flaring a trifle towards its end. It is generous in size, permitting the lens to be used at its largest aperture without the slightest danger of cutting the corners of the negative area. An interesting feature lies in the cut-out section of the shade which permits the field of view as well as the focus to be established without interference. The operator sees through the sunshade by means of the aperture provided in the shade.

All local dealers now have this new sunshade for the Summar lens in stock. Owners of the Summars are urged to invest in one of these new shades because it not only gives complete protection to the lens but is a pleasure to use. A sunshade is, as everyone knows, an absolute necessity for good work, and it is important that the correct style be chosen for a given lens for maximum results.

# African Background for Motion Pictures

Am making a picture that will take me to almost every part of Africa during 1936-37. If you have any African background you want shot during that time write me and I will quote you prices.

## USING BELL & HOWELL EQUIPMENT

*Address until January 1st* TAFT HOTEL, NEW YORK CITY

*January 1st to February 15th, 1936* AMERICAN EXPRESS, HAYMARKET, LONDON

*After February 15th, 1936, address*

**MERL LA VOY**

care of

**WHITMARSH TRAVEL FILMS**

P. O. Box 51

Nairobi, Kenya Colony, British East Africa



## The Jewel Box of the Cosmetic World

**Max Factor's Temple of Beauty**  
Arising out the Fountain of Youth.

The Show Place of Hollywood and the Sun Sprayed Landscape of California.

At Sixteen Sixty-Six Highland Avenue, in Hollywood.

Watch the January International Photographer for a description of this Home of Charm in the Magical City of the Cinema.

## A SHIPLOAD OF BACKGROUNDS, ETC.

By BILLY BOYCE

**T**HE already overcrowded Pacific Ocean was submitted to a still greater test on November 17th, when the Tay Garnett Expedition cleared for Honolulu, the first step of a cruise which will terminate with the complete circumnavigation of the earth, and it is expected that the cruise will require at least a year to make.

This long talked of expedition is the brain child of Director Tay Garnett, of Hollywood, the purpose of which is to photograph backgrounds and short subjects with the whole world as a stage.

Director Garnett is doing the thing right. He will not trifle with liners or wind-jammers, but has purchased the S. Y. Athene, a beautiful craft, 106 feet long, powered with two Diesel engines, a staunch little boat and good enough to sail the seven seas and come home O. K.

At the end of one year, to a dot, the S. Y. Athene will dock at San Pedro harbor, returning with the biggest load of backgrounds, side-wise dissolves, fade-outs, in and out irises, barn-doors, explosion transformations, double exposures and other marvels of cinematographic nature now seldom seen in captivity in the studio zoos.

In the meantime the S. Y. Athene will have touched at Honolulu, Wake Island, Guam, China, Japan, Indo China, Siam, Malay States, Straights Settlements, Dutch East Indies, India, Arabia, Africa and Abyssinia, if the Ethiopian-Italo war has been ended by that time.

The most interesting feature of this expedition to the readers of THE INTERNATIONAL PHOTOGRAPHER is the photographic equipment installed by the much travelled and far famous J. B. Shackelford, internationally known for his photographic work with the Roy Chapman Andrews Expeditions into the Desert of Gobi, cruises along the Great Barrier of Australia and expeditions in the interest of the National Geographic Magazine.

Mr. Shackelford has equipped his part of the ship with a complete photographic laboratory, air conditioned and with a system of circulating chemicals, with thermostat control. The capacity is 1,200 feet of film per hour.

For many months Mr. Shackelford has been experimenting with sea water for mixing fixing solution and to use for wash water, also as a developer. Thus far his experiments with the wash water have been successful, and while he will not utilize his findings on this expedition, he will have an interesting story to tell those of his fellow cameramen who are planning to go to sea with a photographic motion picture laboratory.

As photographic equipment Mr. Shackelford takes with him a Bell & Howell Eyemo, Akeley motion picture camera, a Mitchell silent camera; one Sept, and several other still cameras. A complete Frigidaire system also has been installed, which Mr. Shackelford terms "the life saver of the lab." He has been in the tropics before and he is aware of the task before him—hence the ice and cold air—and lots of it.

Director Tay Garnett, in charge of this expedition, and owner of the ship, is working under the release sponsorship of R.K.O., and the cruise of the S. Y. Athene is expected to open the way to some great and unusual effects to be seen upon the screen a year hence.

The personnel of the expedition includes: Tay Garnett, producer and director; J. B. Shackelford, chief cinematographer, technician and scientist; Mrs. Helga Garnett, producer of one reel features, wife of Tay Garnett; Sidney R. Burnap, Jr., writer; Alvin H. Jansen, business manager; A. J. Harris, master; Erwin Katzer, chief engineer; George Ong, radio operator; Israel Oliver, chief steward; eighteen members of the crew.



# Hal Mohr Speaks In Behalf of Cameramen

By HERBERT ALLER

Whenever the words "ace cameraman" are mentioned, discerningly the listener turns about and wonders what it is that this cameraman has done to earn himself the title "ace cameraman." Realistically to be an ace cameraman one must also be a first cameraman or one in complete charge of all photography on a particular production. There are about 230 first cameramen engaged in the motion picture industry in Hollywood California.

Of these about 200 are engaged in the major studios where some are allocated to production others to process or background departments and others to the trick department. Hence, those who are actually engaged in production can really come before the public's eye. Although small in number, yet intrepid in filming those impetuous action dramas and westerns, are those first cameramen engaged by independent producers, where they number about thirty. So it is that when we speak of ace cameramen we have in mind any one, or few representatives of the group just mentioned. Most interesting, and of utmost importance, is **how** they got there and what they did to earn themselves the reputation bestowed upon them.

Rising from the ranks, sedulous and observant, the one-time assistant cameraman acquires photographic knowledge by working and watching. In time he moves into the category of the operative cameraman, commonly known in cinemaland as second cameraman. After reaching this stage many of the men become reconciled to potentialities; they know that the barrier between that position and the one of first cameraman is nothing more or less than the break, fate's hand in every man's career.

No so long ago George Clemens, second cameraman at Paramount Studio, was called upon to photograph Mae West in "Klondike Lou," Mae West's regular cameraman being engaged at the time on another picture. Clemens' good fortune was, first, that he had been on Mae West's previous pictures and secondly, Mae West's regular cameraman was engaged in photographing another picture. Surely this opportunity came as a surprise to Clemens. Not so because he was to venture into any unknown, but solely because his yearning for this cherished opportunity suddenly materialized in a most unexpected fashion. To Clemens went the opportunity of photographing a star in every sense of the word. More-



An off set shot of the Old Maestro himself. No wonder he smiles—On November 26, his lovely wife, Evelyn Venable, presented him with Dolores, a beautiful nine pound daughter. Congratulations.

over, the story, the sets and the cooperative aid of the talented art directors as well as the glamorous star he was to photograph, placed Clemens in a position where he could become well known over night. To have planned all of this is beyond the writer's imagination.

Just as interesting is the case of Lucien Ballard, now first cameraman for Josef von Sternberg. Ballard's meteoric rise to fame as an ace cameraman is breath-taking—for about six years he was an assistant, then suddenly a second cameraman and within a short time thereafter a first cameraman. In reviewing his recently completed picture "Crime and Punishment," one critic termed his photography "beautiful and forceful." His technical and artistic schooling is too well known to record in this space. Yet that alone might not have been demonstrated had the director, Josef von Sternberg, not urged his advancement.

We find a similar case of Leon Shamroy, now

(Turn to Page 27)

# Recent Photograph and Sound Patents

By ROBERT FULWIDER

Registered Patent Attorney

(Wilshire at La Brea, Los Angeles)

2,015,722—Reflector for Cinematographic Purposes. Gabriel S. Moreno, assignor to C. M. C. Corp., New York City.

2,015,860—Film Reel. Russell P. May, assignor to R. C. A.

2,015,950—Photographic Camera. Edwin G. Mayer, assignor to Bell & Howell Co., Chicago, Ill.

2,016,034—Projection System. H. C. Conord, assignor to Trans-lux Daylight Screen Corp., N. Y.

2,016,083—M. P. Film Propelling Means. Harris N. Ensign and Harry A. Hanson, assignors to Paramount Production, Inc., Los Angeles.

2,016,185—Projection Screen. James F. Thomson, Falkirk, Scotland.

2,016,188—Projector. Henry B. Watkins, assignor to Kingore Mfg. Co., Westerville, Ohio.

2,016,217—Production of Cinematographic Films. G. A. Raguin, assignor to Socite Lumiere, Paris, France.

2,016,270—Printing Device for Lenticulated Films. Hans Arni, et al., assignors to Opticolor Corp., Glarus, Switzerland.

2,016,506—Means for Controlling the Operation of Picture Films. Stanley Maluss and Irving Jadwin, Newark, N. J.

2,016,656—Film Driving Means for Sound Recording Cameras. John Spense, assignor to Remac Patents Corp., New York City.

2,016,666—Colored Photograph and Method of Making Same. Wm. T. Crespinel, assignor to Cinecolor, Inc., Los Angeles.

2,016,690—Film Gate and Septum for Projecting Machine. Richard Thomas, assignor of one-half to William J. Bryan, Jr., Los Angeles.

2,016,691—Apparatus for Double Simultaneous Projection. Richard Thomas, assignor of one-half to Wm. J. Bryan, Jr., Los Angeles.

2,016,692—Illuminating System for Projecting Motion Pictures in Color. Richard Thomas, assignor of one-half to Wm. J. Bryan, Jr., Los Angeles.

2,016,803—Means for Modifying the Transmitted Light in Moving Lens Cinematographic Machines. Wesley E. John, Johannesburg, Transvaal, South Africa.

2,016,937—Camera and Speed of Photographing. Allen J. Barnes, assignor to Joseph Hinshaw, Trustee, Wilmette, Ill.

2,017,117—Intermittent Feed for Motion Picture Apparatus. Jos. A. Briggs, assignor to R. C. A.

2,017,190—Optical System for Natural Color Cinematography. Merrill-Waide, assignor to Natural Color, Inc., Long Island City, N. Y.

2,017,203—Film Gate. Murray G. Clay, assignor to R. C. A.

2,017,249—Photographic Camera. Albert S. Howell, assignor to Bell & Howell Co., Chicago, Ill.

2,017,503—Projector Construction. Ed. P. Knox, Toms River, N. J.

2,017,575—Light Source for Projection. Richard Thomas, assignor of one-half to William J. Bryan, Jr., Los Angeles.

2,017,653—Velocity Comparing System for Film Driving Apparatus. C. A. Clarke and L. A. Elmer, assignors to Bell Telephone Labs., New York.

2,017,855—Photographic Apparatus. Warren D. Foster and E. L. Parmelee, assignors to Kinatome Patents Corp., N. Y.

2,018,043—Synchronizing Motion Pictures and Sound Records. Alexander F. Victor, New York, N. Y.

2,018,069—Continuous Projector with slow speed deflectors. Wilho A. Kosken, New York, N. Y.

2,018,195-2,018,196—Production of Photographic and Cinematographic Color Positives. John E. Thornton, Jersey, Channel Islands.

2,018,200—Sound Record for Optic Sound Reproduction. Fernando Crudo, Buenos Aires, Argentina.

2,018,315—Sound Reproduction. W. H. Offenhausser, assignor to R.C.A.

2,018,514—Framing Mechanism for Projectors. Herman de Vry, Chicago, Illinois.

2,018,592—Cinematography in Relief. Albert Arnulf, Paris, France.

2,018,690—Method and Apparatus for Projecting Pictures. Leo C. Trempalla, LaSalle, Ill.

2,018,812—Printing Sound and Motion Picture Films. Richard Schmidt, assignor to Agfa Ansco, Binghamton, N. Y.

2,019,147—Sound Head. F. J. Loomis and E. W. Reynolds, assignor to R.C.A.

2,019,152—Sound Reproducer and Optical System Therefor. John A. Maurer, Jr., assignor to R.C.A.

2,019,260—Photographic Printing Machine, and 2,019,261—Intermittent Feed Mechanism. Albert S. Howell, assignor to Bell & Howell Co., Chicago, Ill.

## POPULAR MAGAZINE ENJOYS INCREASE IN SIZE

**Leica Photography Magazine**, issued by E. Leitz, Inc., 60 East 10th St., New York City, is now in its fourth year. Originally started in December, 1932, under the guidance of Willard D. Morgan and Karl A. Barleben, Jr., it has grown from an 8-page "off-set" bulletin to a full-fledged 24-page "letter-press" magazine with considerable paid advertising. In 1935 the editorial staff was increased by the addition of Augustus Wolfman.

**Leica Photography** today has a circulation well over 16,000 copies per month, and from 100 to 200 new names are added monthly to the subscription list. It is issued and sent free of charge to all regis-

tered Leica camera owners in the United States. To all others, a charge of \$1.00 per year is made. Foreign subscriptions cost \$1.50 per year. The magazine is looked to as the foremost authority in the field of miniature cameras, and was the first of its kind to appear on the market.

Specimen copies will be gladly sent on request. Simply write to **Leica Photography**, E. Leitz, Inc., and a copy of the current issue will be sent gratis. If you own a Leica camera and live in the United States or possessions, send the serial number of your camera and your name will be placed on the mailing list to receive the magazine regularly each month.



---

# QUALITY PLUS

---

OF ALL the reasons for adopting a new raw film, photographic quality...what the audience sees on the screen...ultimately stands supreme. That explains why the great majority of today's motion pictures are being made on Eastman Super X Panchromatic Negative. Speed, fine grain, versatility...all of these are overshadowed by the fact that Super X gives to the world's screens *quality plus*. Eastman Kodak Co., Rochester, N. Y. (J. E. Brulatour, Inc., Distributors, New York, Chicago, Hollywood.)

---

**EASTMAN *SUPER X***  
**PANCHROMATIC NEGATIVE**

# Correct Exposure on Reversal Kine Film

(By Special Permission of P. C. Smethurst, England, to The International Photographer)

The student of photography does not proceed far in general practice before discovering that the initial exposure of the negative is the all-important factor. Despite all efforts to obtain this ideal exposure, the finished negative frequently shows varying degrees of departure from the effects designed. These variations from the ideal may not represent serious problems, for several reasons. First: A certain degree of correction may be achieved in the formula of the developer and the manner of development. Second: The varying contrasts of paper and the development of the print may compensate variations in exposure, contrasts, etc. Third: There is the wide

ways want the same quality of screen picture, and is entirely suitable for beginners who are likely to make mistakes in exposure, anyone who wants special effects which demand abnormal exposure cannot get anything like the result they want.

One thing is certain: With every kind of reversal film there are occasions where an ordinary meter gives a totally incorrect reading, and if ordinary meters are used, even the Kodak process is often helpless. This is, of course, neither an aspersion on the meter nor on the film, but merely comes about because the two are unsuited to work in conjunction.

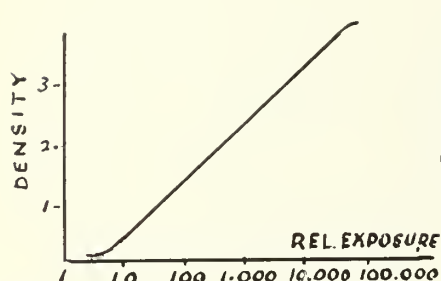


FIG. 1

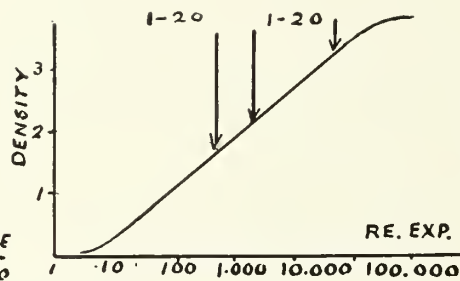


FIG. 2

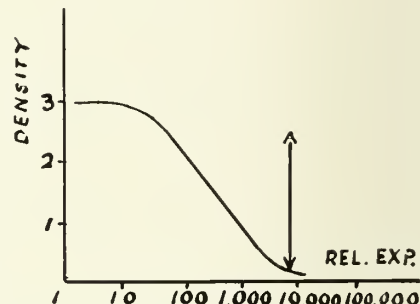


FIG. 3

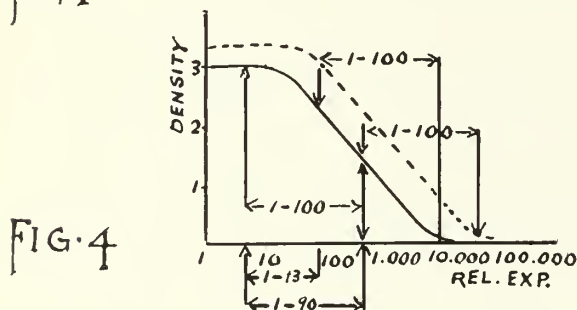


FIG. 4

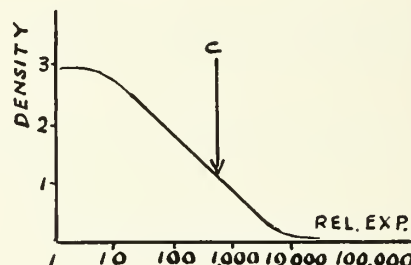


FIG. 5

latitude in modern photographic materials. Even in professional kinematic practice such errors may be corrected, to some extent, by the manner of processing.

However, the reversal process as applied to amateur films is another matter. The ultimate results are dependent upon the initial exposure. None of the above expedients are of much avail; consequently, the exposure for the reversal process must be very accurate.

A number of patents have been taken out to cover various methods of compensation for incorrect exposure during processing. Even these methods, though, have their limitations. Practically any process known can compensate for incorrect exposure, providing that the film has been evenly exposed throughout its whole length, but there is only one process—that of Kodak—that will compensate for inaccurate exposures in the individual shots of a film. Even the Kodak process has the defects of its qualities, because compensation is applied automatically by a machine, and when we deliberately under-expose for special effects the machine knows nothing of our intentions and forces up the image to the standard quality.

We cannot have our cake and eat it. Thus, while the Kodak process is unsurpassed, provided we al-

Thus, if we are to expose correctly, we have to know something of the technical facts underlying both the negative-positive and reversal processes. Fig. 1 shows the characteristic curve of a negative film, and it will be seen that the straight section (which is important as being the region within which a correct subject rendering is possible) is a very long one. Consequently a subject that has a limited contrast—as indeed most exterior subjects have—does not by any means take up the whole of the straight section. Fig. 2 shows that a subject with a contrast range of 1-20 may be exposed very differently without moving off the ends of the straight section and impairing the rendering. In the figure, an exposure latitude of 17-1,700 exposure units is shown, which implies that in practice a film that would be correctly exposed at  $1/25$ th of a second could have 4 seconds exposure without materially affecting the subsequent print. In practice, roll films have an even longer straight section than here shown, and a test on a commercial film made some years ago indicated that anything between  $1/25$ th of a second and four minutes gave a negative of good printable quality.

The reversal film is quite different. Fig. 3 shows an average reversal characteristic, which is naturally the other way round from the negative one, and



has a relatively short straight section, because of the increased curve slope. A contrasty subject with a range of 1-100 (quite common where artificial light is used) will take up practically all the straight section of the curve, so that the exposure must necessarily be very exact. Fig. 4 shows how an inaccurate exposure will cause part of the subject range to run right off the curve, which will make the result very poor indeed. But (in processes other than Kodak, which can correct individual shots) so long as the brightest lights of every shot happen to fall on some equal value of exposure, compensation can be applied by shifting the curve to the left or right. The two dotted curves in Fig. 4 show that this will correct the result.

The problem of exposing reversal film is thus one of placing the highest lights of the subject on one particular point of the curve (1). This applies also to Kodak film, because even Kodak themselves agree that though compensation can be successfully applied to a very wide range of exposures by their process, the screen picture is far from being at its best when the exposure is seriously incorrect and considerable compensation must be applied. Quite apart from the fact that bad exposure is a sign of slovenly work, it is naturally best to give the compensation process as little to do as possible.

The technical requirements, then, are that in each shot we place the high-lights of the subject on the curve in such a way that they always fall on the same exposure value. Since the screen picture should be practically transparent in the high-lights, they must clearly fall on some such point as "A" in Fig. 3, where the particular curve is one in which excessive compensation is not being applied. The ordinary meter, though, does not do this, because it is designed to find the average brightness of the subject, and place this average brightness value on the central point of the straight section of the characteristic, as at "c," Fig. 5. The high-lights and shadows stretch to the right and left respectively, and the exposure values on which they fall depend entirely on the contrast range of the subject. A contrasty subject with a range of 1-1000 would thus be correctly exposed with the ordinary meter, but one of range 1-10 (open landscape with no heavy shadows) would appear under-exposed, because the high-lights would not stretch far enough to the right. From this follows the fact that a contrasty subject needs rather less exposure than a flat (i. e., short-range) subject of the same average brightness. On the other hand, if every shot has the same contrast range, the ordinary meter works quite correctly, because compensation in processing will see that the high-lights are rendered transparent, and all the high-lights stretch to the right for the same distance, and fall on identical exposure values.

This is why ordinary meters are often quite successful when used in the open air, because exterior subjects are usually of rather similar contrast, and the high-lights fall near enough each other on the curve to be very nearly correctly exposed. The flat shape of the curve at the right-hand end also helps in this matter. In artificial light, where the contrast may range between 1-10 and 1-150 or more, the ordinary meter often gives a very inaccurate idea of the actual exposure required. With such a variation in contrast range, it is essential to place the high-lights correctly every time.

In order to get over the various difficulties, the writer has devised a method of getting this result with an ordinary meter, which is, fortunately, an extremely simple matter. Unknown to the writer,

a similar suggestion had been made last year by Dr. Harrison in a lecture on Photo-Electric Exposure Meters (2), though in this case a careful examination of the report of the lecture suggests that Dr. Harrison had screen-color plates and films in mind rather than the estimation of exact exposure for each shot of a kine film. An ordinary meter can measure the brightness of the high-lights just as well as the average brightness, provided that nothing but the high-light itself is in the meter field. If, for instance, the meter is turned toward the sky, the sky brightness (as a high-light in the picture) will be measured, and given in terms of lens aperture. But we have already seen that the actual aperture given by the meter would mean that the sky intensity was placed on the center point ("c"—Fig. 5) of the straight part of the characteristic, and the high-light is not wanted here, but well up to the right. The average reversal film has an exposure range in the straight section of about 1-100, so that with the geometric scale of exposure values shown in the figures, the central point would be "10" in the range of 1-10-100. This means that to get the high-light at the correct end of the curve, the actual lens aperture given by the meter must be altered to give ten times the exposure indicated, which may be conveniently done by dividing the aperture given by the meter by three. In this way, pointing the meter to the sky and taking a reading might show a value of  $f/21$ —and the lens aperture to use in the camera is  $f/7$ . Even when the sky is not actually included in the picture it may be used as a high-light, providing something like a human face is in the camera field, for such light objects will reflect as much light as the sky itself. On other occasions the meter must be taken

(Turn to Page 28)



## CAMERA & PROP RENTALS

Camera Supply Co.  
1515 Cahuenga Blvd.  
Hollywood, Calif.

Ruddy Geraus, Manager  
GLadstone 2404

Nite Phone GLadstone 6583  
Cable Address — "CAMERAS"



We hear a great deal, in one way and another, about artistic temperament, a term subject, in these days, to a variety of interpretations. If we assume that it signifies an innate sense of the artistic, it is obvious that the photographer finds this a valuable possession. It is our point here, however, that artistic temperament alone is not enough. The photographer is not more often concerned with art than with exactitude. In other words the photographer is a man who works with his hands as well as his head, and he must work with his hands in the most precise and accurate fashion, if he expects to achieve outstanding results.

Every photographer who does professional photography appreciates the advantage of a well-laid-out laboratory. Unfortunately, most of us start out with cramped quarters, or we fall heir to a laboratory which has been built by another. Again, our requirements vary with the kind of work we do and what was a satisfactory arrangement five years ago may not be ideal today. Space, while we must have enough of it, is not the primary requisite in laboratory layout. In fact, a small laboratory is often to be desired, because it saves steps.

Starting, then, with a limited space, what should be the general arrangement? Obviously, it will vary to a considerable extent with the needs of the worker. There are, however, certain necessities, which if included in any laboratory layout, will save time and effort and bring about better results.

More than one photographer has deplored the lack of a photographers' handbook. There is none at present, and as a consequence, one must thumb the pages of many books to obtain information on any point. Certainly a dark room is not the appropriate setting for extensive research, and facts, figures and data, to be of value, must be readily accessible.

The accompanying illustration, intended as a testing laboratory in a school, shows what can be done in a small space. The partition and over-head safelights between the printing side and the negative side have been eliminated in the drawing in order to give a clearer idea of the layout.

1. The Projection Printer is fastened to the end of the printing table in order to facilitate the making of exceptionally large prints, by swinging the projection printer down into a horizontal position.

2. A Dodging Device for controlling enlargements during exposure is a valuable asset. As with print tongs, it is hard to adopt one, if you have been accustomed to using the hands, but once mastered, you would not be without a dodging device. It consists of a large piece of cardboard (12 in. x 17 in.) with a 10 in. disk pivoted to it so that the various size holes may be brought over an opening by revolving the disk. This device is the design of J. Arthur Pedersen of Arrow Studios, Los Angeles.

3. The adjustable Masking Board is to be preferred over any other, because it permits one to mask for odd sizes. The writer prefers, however, to use a 5x7 and 8x10 mask of the non-adjustable type for making enlargements that can be handled with this type. The projection paper is pushed through a slot in one end and is driven home with an eraser which is always handy, being tied to the projection printer with a string. After the exposure, the paper is removed from the masking board by pushing it along through the slot by the use of the eraser, thus avoiding the risk of finger prints.

4. It is a common tendency on the part of photographers to be careless about graduates. The good

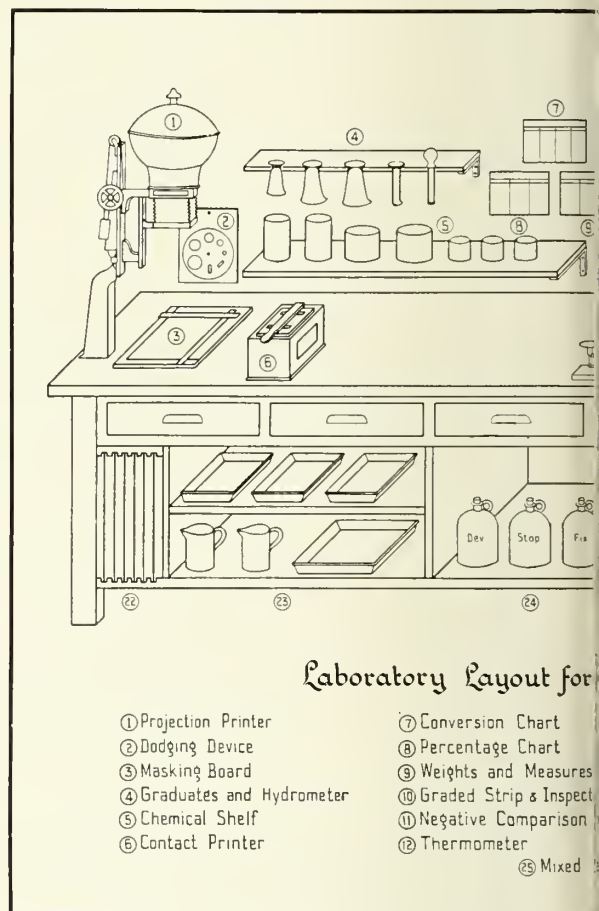
# What Every Photo

By Ro

Instructor of Photograp

housewife would not think of putting wet or dirty dishes into the cupboard, nor should the photographer. If each graduate is cleaned after use and put back on the shelf where it belongs, it will be easy to find it when wanted.

5. If one cannot conveniently install a chemical cabinet, a shelf will serve. The labels should face to



the front.

6. The Contact Printer should be the type that permits printing control. This will require a ground glass about 2 inches below the printing glass.

7. The Conversion Chart on the wall gives a table of equivalents for metric and English (avoirdupois) weights and measures. Or you may find the rule expedient.

## RULES FOR CONVERSION

### Length—

Inches to Centimeters: Multiply by 2.54  
 Centimeters to Inches: Divide by 2.54  
 Yards to Meters: Divide by 1.094  
 Meters to Yards: Multiply by 1.094

### Volume—

Cubic Centimeters to Fluid Ounces: Divide by 29.6  
 Fluid Ounces to Cubic Centimeters: Multiply by 29.6  
 Quarts to Liters: Divide by 1.057  
 Liters to Quarts: Multiply by 1.057



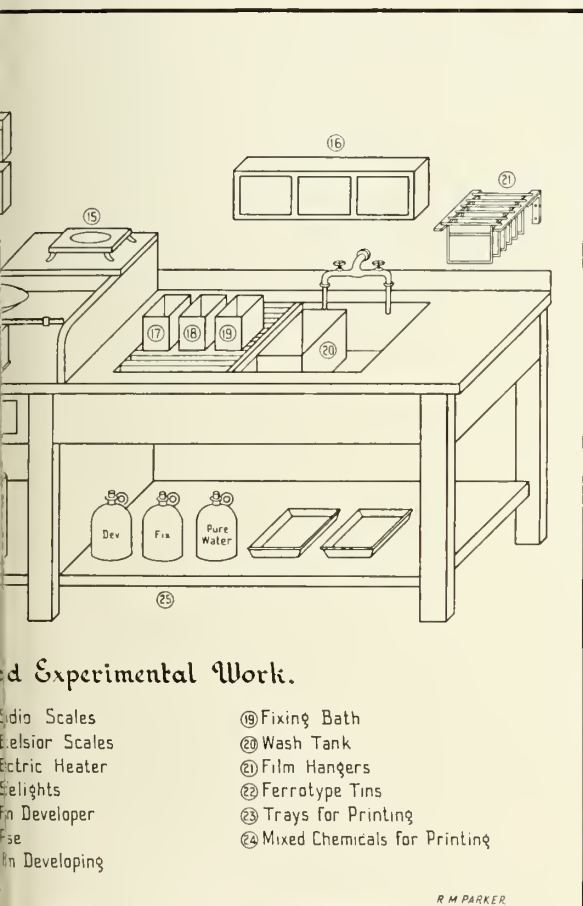
# Photographer Should Know

PARKER

Technic Evening High School

## Weight—

Grains to Grams: Divide by 15.43  
 Grams to Grains: Multiply by 15.43  
 Ounces (Av.) to Grams: Multiply by 28.4  
 Grams to Ounces (Av.): Divide by 28.4  
 Pounds (Av.) to Kilograms: Divide by 2.205  
 Kilograms to Pounds (Av.): Multiply by 2.205



## Experimental Work.

- |                 |                                 |
|-----------------|---------------------------------|
| Radio Scales    | 19 Fixing Bath                  |
| Celsius Scales  | 20 Wash Tank                    |
| Electric Heater | 21 Film Hangers                 |
| Light Scales    | 22 Ferratotype Tins             |
| For Developer   | 23 Trays for Printing           |
| For Fixer       | 24 Mixed Chemicals for Printing |
| For Developing  |                                 |

## Temperature—

Fahrenheit to Centigrade: Subtract 32 and divide by 1.8

Centigrade to Fahrenheit: Multiply by 1.8 and add 32

8. The Percentage Chart enables one to quickly and accurately compute amounts of chemicals and water for obtaining various strengths of solution. Per cent solutions may be made up by weight by volume, or by both weight and volume. For photographic work, most per cent solutions are made up according to the weight of the chemical, and fluid ounces of water, in order to obtain the number of ounces (avoirdupois) of water to make up the solution. A per cent solution will contain as many units of the chemical as the percentage strength, in enough water to make one hundred units. Thus a ten per cent solution would contain one ounce of the chemical dissolved in nine ounces of water. By the Metric System, one c.c. of water weighs one gram; a ten per cent solution would require one gram of the

chemical and nine grams of water, to give 10 grams of the solution by weight.

To compute the number of grains per ounce for a per cent solution, multiply the percentage strength by 4.4. Thus if ten ounces of a five per cent solution are desired, we multiply 5 by 4.4 or 22 grains for each ounce, or 220 grains to add to ten ounces of water.

Formulas as a rule call for 28% acetic acid. Since acetic acid is purchased as glacial acetic (99%), it occasionally puzzles the worker to figure how much of the full strength acetic acid is to be used for the volume called for in the formula.

Rule: Multiply the percentage strength required by the amount required and divide by the percentage strength of the acid on hand. Thus to prepare ten ounces of 28% acid from 99%, multiply 28 by ten and divide by 99. The result is 2.8 ounces of 99% acetic acid in 7.2 ounces of water.

To make up a saturated solution of a chemical, measure out the quantity of water desired in a graduate, and add the chemical a little at a time, stirring continually, until no more of the chemical will dissolve. After the undissolved chemical has precipitated to the bottom of the graduate, stir at intervals for an hour, after which the required amount of saturated solution can be poured off.

The strength of some solutions (such as hypo) is tested according to specific gravity. The hydrometer consists of a weighted glass bulb in a glass tube and readings are taken at the surface of the liquid from a graduated scale on the tube above the bulb. Most hydrometers for photographic work read zero for pure water, the readings increasing to 80, which indicates the heaviest liquid that can be tested with this instrument. These readings, however, do not refer to the specific gravities, but are gradations on the Baumé scale which can be readily converted into specific gravities.

Any person who frequently mixes chemicals is not dependent upon wall charts giving weights and measures, but there are the less experienced ones who come into your laboratory to mix up a formula and they are dependent upon these tables. The following tables will care for most of this work:

### Avoirdupois

109 grains.....	1/4 ounce
218 grains.....	1/2 ounce
327 grains.....	3/4 ounce
437 1/2 grains.....	1 ounce

### Liquid (Weight)

16 ounces.....	1 pint
32 ounces.....	1 quart
128 ounces.....	1 gallon

### Fluid (Volume)

60 minims.....	1 dram
8 drams.....	1 ounce (480 minims)
4 ounces.....	1 gill
4 gills.....	1 pint
2 pints.....	1 quart
4 quarts.....	1 gallon
1 minim = .91 grains	

NOTE: The fluid measure is used in Great Britain except that their pint contains 20 ounces and their quart 40 ounces.

10. The Graded Strip and Inspection Box is a valuable adjunct to any laboratory. It consists of a light-box, the front of which is covered with opal glass, at the top of which is pasted a graded strip of film. The number of gradations on the graded strip (film) will depend upon the type of work required. The gradations range from total opacity to

(Turn to Page 28)

# The Cinematographer's Book of Tables

By FRED WESTERBERG

## HEIGHT OF FIELD 35 mm. FILM

Distance in Feet to Point of Focus	FOCAL LENGTH OF LENS IN MILLIMETERS									
	25	32	35	40	50	60	75	100	125	150
	VERTICAL ANGLE OF VIEW IN DEGREES WHEN FOCUSED AT INFINITY									
	35.5	28.1	25.8	22.7	18.3	15.2	12.2	9.2	7.3	6.1
HEIGHT OF FIELD IN FEET										
2	1.2	1.0	.9	.8	.6	.5	.4	.....	.....	.....
3	1.9	1.5	1.4	1.2	.9	.8	.6	.....	.....	.....
4	2.5	2.0	1.8	1.6	1.2	1.0	.8	.....	.....	.....
5	3.2	2.5	2.3	2.0	1.6	1.3	1.0	.....	.....	.....
6	3.8	3.0	2.8	2.4	1.9	1.6	1.2	.9	.....	.....
7	4.5	3.5	3.2	2.8	2.3	1.8	1.5	1.1	.....	.....
8	5.1	4.0	3.7	3.2	2.6	2.1	1.7	1.2	1.0	.....
9	5.8	4.5	4.1	3.6	2.9	2.4	1.9	1.4	1.1	.....
10	6.4	5.0	4.6	4.0	3.2	2.6	2.1	1.6	1.2	1.0
11	7.0	5.5	5.0	4.4	3.5	2.8	2.3	1.7	1.4	1.1
12	7.7	6.0	5.5	4.8	3.8	3.2	2.5	1.9	1.5	1.2
13	8.3	6.5	6.0	5.2	4.1	3.5	2.8	2.1	1.6	1.4
14	9.0	7.0	6.4	5.6	4.4	3.7	3.0	2.2	1.8	1.5
15	9.6	7.5	6.9	6.0	4.7	4.0	3.2	2.4	1.9	1.6
16	10.3	8.0	7.3	6.4	5.1	4.3	3.4	2.6	2.0	1.7
18	11.5	9.0	8.2	7.2	5.8	4.8	3.8	2.9	2.3	1.9
20	12.8	10.0	9.2	8.0	6.4	5.3	4.3	3.2	2.6	2.1
25	16.0	12.5	11.4	10.0	8.0	6.7	5.3	4.0	3.2	2.7
30	19.2	15.0	13.7	12.0	9.6	8.0	6.4	4.8	3.8	3.2
40	25.6	20.0	18.3	16.0	12.8	10.6	8.5	6.4	5.1	4.3
50	32.1	25.0	22.9	20.0	16.0	13.3	10.7	8.0	6.4	5.3
60	38.5	30.0	27.5	24.0	19.2	16.0	12.8	9.6	7.7	6.4
70	44.8	35.0	32.0	28.0	22.4	18.6	15.0	11.2	9.0	7.5
80	51.3	40.0	36.6	32.0	25.6	21.3	17.1	12.8	10.2	8.6
90	57.7	45.0	41.2	36.0	28.8	24.0	19.2	14.4	11.5	9.6
100	64.1	50.0	45.8	40.0	32.0	26.7	21.4	16.0	12.8	10.7

Based on Standard Sound Film Camera Aperture .631×.868 of an inch.

## WIDTH OF FIELD 35 mm. FILM

Distance in Feet to Point of Focus	FOCAL LENGTH OF LENS IN MILLIMETERS									
	25	32	35	40	50	60	75	100	125	150
	HORIZONTAL ANGLE OF VIEW IN DEGREES WHEN FOCUSED AT INFINITY									
	47.6	38.0	35.0	30.8	25.0	20.8	16.7	12.6	10.1	8.4
WIDTH OF FIELD IN FEET										
2	1.7	1.3	1.2	1.0	.8	.6	.5	.....	.....	.....
3	2.6	2.0	1.8	1.6	1.3	1.0	.8	.....	.....	.....
4	3.5	2.7	2.5	2.1	1.7	1.5	1.1	.....	.....	.....
5	4.4	3.4	3.1	2.7	2.2	1.8	1.4	.....	.....	.....
6	5.3	4.1	3.8	3.3	2.6	2.2	1.7	1.3	.....	.....
7	6.2	4.8	4.4	3.8	3.1	2.6	2.0	1.5	.....	.....
8	7.0	5.5	5.0	4.4	3.5	2.9	2.3	1.7	1.4	.....
9	7.9	6.2	5.7	5.0	4.0	3.3	2.6	2.0	1.5	.....
10	8.8	6.9	6.3	5.5	4.4	3.7	2.9	2.2	1.7	1.4
11	9.7	7.6	6.9	6.1	4.8	4.0	3.2	2.4	1.9	1.5
12	10.6	8.3	7.6	6.6	5.3	4.4	3.5	2.6	2.1	1.7
13	11.5	9.0	8.2	7.1	5.7	4.8	3.8	2.9	2.3	1.9
14	12.3	9.7	8.8	7.7	6.2	5.2	4.1	3.1	2.5	2.1
15	13.2	10.3	9.5	8.2	6.6	5.5	4.4	3.3	2.6	2.2
16	14.1	11.0	10.1	8.8	7.0	5.9	4.7	3.5	2.8	2.4
18	15.9	12.4	11.4	10.0	7.9	6.6	5.3	4.0	3.2	2.6
20	17.7	13.8	12.6	11.0	8.8	7.4	5.9	4.4	3.5	2.9
25	22.0	17.2	15.8	13.7	11.0	9.2	7.3	5.5	4.4	3.7
30	26.5	20.7	18.9	16.5	13.2	11.0	8.8	6.6	5.3	4.4
40	35.3	27.6	25.2	22.0	17.6	14.7	11.7	8.8	7.0	5.9
50	44.1	34.5	31.5	27.4	22.0	18.4	14.7	11.7	8.8	7.3
60	53.0	41.4	37.8	33.0	26.4	22.1	17.6	13.2	10.5	8.8
70	61.8	48.2	44.2	38.0	30.8	25.8	20.6	15.4	12.3	10.3
80	70.6	55.2	50.5	44.0	35.2	29.4	23.5	17.6	14.1	11.8
90	79.5	62.0	56.8	50.0	39.6	33.1	26.4	19.8	15.8	13.2
100	88.2	69.0	63.0	55.0	44.1	36.8	29.4	22.0	17.6	14.7

Based on Standard Sound Film Camera Aperture .631×.868 of an inch.

## PICTURES INDOOR AND OUT

(Continued from Page 3)

selves nicely to the soft-focus effect. Softness does not mean mushiness. Years ago there was a rage on "mush" pictures—pictures so distorted by softness that it was difficult to ascertain the nature of the subject photographed. Luckily, we have passed the era of that fad, for it had nothing to offer except confusion, under the guise of "art." Today most of us demand pictures of wire-sharpness. The result is that modern photographs are so sharp that they almost hurt the eye! I personally prefer sharpness in my pictures, but since using the Thambar lens have come to realize that certain types of pictures are improved by its use.

Pictures out-of-doors are ordinarily of a different character than those made indoors. The proper selection of light plays a more important part than most amateurs may think, and a good deal of attention paid to this matter will be found to result in better photographs. The angle of the light, for one thing, may mean a great deal in the finished product, yet in itself this matter seems to be, in the minds of many, trivial. The mood of a picture can be altered tremendously, either indoors or out, by the mere alteration of the light—its angle and diffusion. Motion picture cameramen well know that it is practically impossible to maintain a mood in outdoor scenes without the aid of reflectors and diffusing screens, yet still photographers hardly ever give these accessories a thought. A good deal of experimenting can be done with one or two reflectors out-of-doors, although their bulk is really what prevents more

amateurs from using them. Pleasing results, exactly as they are conceived in the mind, cannot be secured without some effort and thought, and it is for this reason that professional films possess that highly pleasing atmosphere even in the outdoor scenes—they improve upon nature.

It should be the aim of every camera-toter to improve his work, even though it was previously said that if a picture pleases its maker, that's all that is necessary. Producing pictures in the same old rut soon becomes tiresome, and only by a continual striving for better results can the involved boredom be completely eliminated. A good picture, from the standpoint of everyone concerned, should incorporate a pleasing pattern, good composition, the proper lighting, and a keen regard to details. After all is said and done, a good picture is as easy to make as a poor one—and infinitely more satisfying.

Indoors and out, it's the same story. Capture on film the idea behind the picture. If that one quality is satisfied, the picture can be considered successful. But, indoors or out, the amateur camerast should shoot his way to happiness with confidence. Exposure meter, filters, soft-focus lens, wide-angle and telephoto lenses—all are tools by means of which the camerast can better his previous results. If he can please himself, he is well on the road to success. If he can please others, he has reached his destination.

Please mention The International Photographer when corresponding with advertisers.



# SHOOTING THE "QUINTS"

By ROY TASH

*Associated Screen News Cameraman, Montreal, Canada*

*Written especially for The International Photographer*

**S**OON after the news of the Quintuplets' birth was flashed to the four corners of the earth back in May, 1934, in that suddenly world-famous little farmhouse of Oliva and Elzire Dionne in the backwoods of Northern Ontario, I was assigned by the Associated Screen News to make my first motion pictures of the world famous babies exclusively for Pathé News.

Since there was no hydro-electric power available in Corbeil, Ontario, to hook up our photoflood lights in order to get pictures of the newly born babies in the old ramshackle Dionne homestead, we had to rig up enough "A" batteries in series to get 110 volts in order to illuminate our setting. We secured the batteries from a North Bay Garage.

I have used photo-flood equipment exclusively in getting my shots of the babies ever since the spotlight was first focused on them. You know, their eyes must be protected and a minimum amount of light must be applied. If I should make the lights the least bit "hot", for back-light effects, etc., this may spell trouble. Their daily routine must not be interfered with in making these pictures. Remember, their health is the first consideration and it is up to myself to manipulate the lights as near to studio lighting as possible with the least amount of light used.

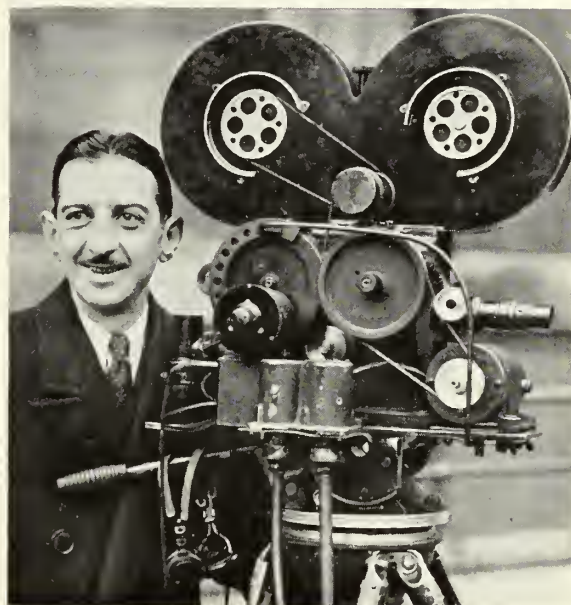
It has been a great privilege and honor to shoot these babies exclusively for the movies and marvelous to be allowed so near to a "World Wonder." Few have touched the babies, few get within touching distance; as a matter of fact the people who have touched the Dionne "Quints" are few and far between.

In making my pictures of the babies the nurses Madame de Kiriline and Mademoiselle Leroux cooperated with us. They do most of the arranging of the children: Claude Collins, of Pathé, who is on the spot directing the action has lost many a hair out of his head because at times the children do just what they shouldn't do when the camera starts running. Since they are "Going On Two", incidentally the title of Pathé's last two reel production on the "Quints", we find them much harder to handle; I should say they are as active as a bunch of crickets. They won't stay "Put" long enough to get shots of all five together.

Needless to say that this runs into a lot of waste footage. Until a few months ago, it was not so great a trick to pose the babies. We could set them on a table and wave a colored handkerchief or a shiny object at them to attract their attention and then steal the shot.

Since French is the only language used to, or in, the presence of the Quints, I feel somewhat lost in my vocabulary—don't know how Dr. Dafoe manages. My French is very limited and what few words I do know I picked up around Montreal. However, here is one example where actions speak louder than words.

To see us at work must be amusing, since we must act like circus performers to arouse their facial expressions. It is a common sight when we are making our shots in the nursery to see either Collins or



myself trying to stand on our heads, balancing on one hand or peeping through the tripod legs making funny faces at the babies in order to cause emotion. These fool antics must be done quietly since the "mike" is always open in order to catch all natural sounds.

After their usual morning bath, which is very amusing to watch, they are ready for playtime and when I say playtime, I mean just that. I recall on one occasion when my camera was in the nursery on a low-angle set up. I had to leave the room for another loaded magazine. When I returned, to my surprise, I found that my lens diaphragm had been tampered with and jacked right down to F.32. It is my custom always to use fairly wide apertures when shooting the kids. Had I not double checked my lens stop before shooting, obviously, my next scene would have been a total loss.

I have my suspicions that it was either Annette or Emelie who dickered with the camera since they are always up to tricks, either trying to climb up on my leg or nosing into something. My sound man tells me that Yvonne is his favorite because she is the noisiest of them all. At one time she broke our ribbons when she yelled into the microphone.

On another occasion, I went out on the veranda between "takes" to have a smoke, when I was attracted by a pounding noise on the window pane. To my amazement there was Yvonne, Annette and Cecile looking out and socking away at the window pane with their fists as if to say: "Well here we are, we're ready; what's our next take." I wasted no time in making a quick-set-up and took advantage of the picture.

This scene resulted in a keen competition between them as to who could pound the hardest or maybe it was who could "show off best." At any rate, it made a swell shot and we were delighted. You know, there is keen rivalry among these dark haired, black eyed youngsters fighting it out as to

(Turn to Page 32)

# The New Ortho-Stereo Camera and Ortho-Stereoscope

*For the First Time Make Available Many Valuable Applications of Stereoscopic Photography in Science and Industry.*



HERETO, the complicated procedure required for accurate stereoscopic work at magnifications greater than unity, and especially with small objects, has discouraged many who have felt the desirability and need for records showing proper perspective, true relief, and freedom from all distortion.

With this co-ordinated combination of camera and viewer, it becomes a simple routine matter to make and view such photographic records with all the impression of solidity possessed by the objects themselves. In effect the photographic presentation is equivalent to viewing a scaled model with the unaided eye at normal viewing distance, under the condition that the model scale equals the magnification employed.

## Wide and Diversified Use

Because the ordinary non-stereoscopic photograph, excellent as it may be, fails to give the truthful impression of co-ordinated binocular vision, the new Ortho-Stereo Camera can be used to advantage in many lines.

Thus it can be utilized in making more informative and permanent records for filing of organic materials, perishable objects, such as foods, biological or anatomical specimens. In flour mills, permanent stereograms can be made of baked loaves in section, to assist in the study and classification of flours, mixing and baking technique.

## Valuable in Teaching

In the study of medicine, stereoscopic records have unlimited possibilities. They assist students to visualize complex structures, pathological growths and lesions and to retain realistic impressions of dissections. Research centers can keep permanent

stereoscopic records of important work accomplished for reference interchange.

Museums, too, will find constant and profitable use for the Ortho-Stereo Camera in photographing rare and valuable objects, such as crystals, jewels, archaeological specimens and mounted objects.

## Desirable Reference Material

The stereoscopic photographs are readily studied and are convenient for distribution and reference. Details escaping notice in the best of ordinary photographs are seen as vividly as though the actual object were brought under observation.

Civil and criminal courts and police departments find the Ortho-Stereo Camera valuable in keeping records of mechanical parts, inventions, fractures, articles in evidence, and other complex bodies and mechanisms. The stereoscopic photograph is as informative as the object itself and requires little space for filing.

## Useful in Engineering

The Ortho-Stereo Camera and Ortho-Stereoscope are of definite value to industry. Engineering departments, research and testing laboratories can avoid the expense and confusion in the accumulation of test specimens. The three dimensional photographs are more easily filed. With pertinent data, notes and engineering computations for the job, the convenient stereograms are highly informative, and are not susceptible to deterioration by oxidation or other effects due to age.

These are only a few of the applications of this new development by the Bausch & Lomb Optical Co.

## Comfort in Observation and Study

In the viewing of stereograms made with the Ortho-Stereo





Camera in the Ortho-Stereoscope, an unusual and gratifying degree of comfort is realized. This is conducive to careful observation and study. There is no waiting or straining of the eyes to accomplish fusion or the perception of plasticity. The desired three dimensional view is presented immediately in complete and perfect form and may be observed over protracted periods without discomfort or eyestrain.

#### Wide Range of Desirable Magnifications

The Ortho-Stereoscope magnifies the stereogram 2.1X. Thus the ultimate magnification of the object when viewed with it will be equal to the product of the magnification due to the camera alone and the magnification due to the stereoscope.

The lens combinations provided are used to secure ultimate magnifications when viewed in the Ortho-Stereoscope, as shown in the table below:

Photographic Magnification	Ultimate Magnification When Viewed
0.48X	1.0 X
0.83X	1.7 X
1.83X	3.75X
3.24X	6.6 X
5.37X	11.0 X
11.75X	24.0 X

Changing from one magnification to another requires only the substitution of one photographic objective mounted on its slide for another and setting a dial on the camera to the magnification corresponding to that marked on the objective and slide combination in use.

#### A Completely Co-ordinated Outfit

For true ortho-steroscopic representation, taking and viewing factors bear definite relation to each other. Camera conditions, such as the focal length of the lens, object and image distance, magnification, and distance between negative centers, must be considered in relation to viewing conditions. These include chosen image distance, focal length of viewing lenses, their separation and that of the finished prints. Complete harmony between visual accommodation and convergence, such as is present in normal and unaided vision, must be attained for the production of an accurate orthoscopic view, and complete comfort and normalcy in observation.

#### Quickly and Easily Used

The Bausch & Lomb Ortho-Stereo equipment is so designed that all of the above conditions are automatically and precisely met without computation and with practically no manipulation on the part of the operator. Furthermore, the severest handicap of manipulation in the making of stereo photographs, namely the need for transposition of prints in mounting, has been eliminated completely. In the Bausch & Lomb equipment, both pictures of the pair, each 70 mm square, are automatically transposed during photography and are recorded on a single 5x7 inch plate at the proper separation and orientation. The operator has only to use a single piece of printing paper, develop and mount it without cutting or transposing views. This unique feature reduces the technique of making the photographs to no more work than that involved in making single or non-stereo photographs.



Description of Equipment

The Ortho-Stereo Camera is of the fixed focus type with fine adjustment and may be used in either vertical or horizontal position. It is fitted with a double slide carrying a frame into which may be placed either the ground glass focusing screen, or the standard 5x7 plate holder. Just below this slide, a cylindrical drum may be revolved to various stops, each stop corresponding to the ultimate magnification for which the camera is set, and which limits plate shift to the exact distance required for the magnification. The manipulation of this slide also causes the automatic transposition of the views between the exposures.

At the bottom of the camera chamber is mounted a photographic shutter, which may be adjusted for time, release, and instantaneous exposures of varying durations. Attached to this shutter is a dovetail clamp into which the objectives are introduced and locked. Each objective is attached to an appropriate adapter, which has a slot of exactly the correct length to permit only the lateral motion required.

The Ortho-Stereoscope is designed for viewing prints made with the Ortho-Stereo Camera. It consists of a stereoscope, with adjustment for interpupillary distance, supported on a metal stand for convenience in use.

Suitable lens and slide equipment are listed separately for convenience in making up outfits especially adapted for the work to be undertaken.

## ArtReeves FILM TESTED EQUIPMENT

### • DEVELOPING MACHINES •

Light Test Machines,  
Bloop Punches,  
Soundolas,  
Sound Recorders,

Amplifiers,  
Microphones,  
Cables,  
Glow Lamps,

Galvanometers,  
Interlock Motors,  
Reeves Lights & Stands.

Dependable Equipment At Prices Within Reason.



"ArtReeves"

Hollywood  
MOTION PICTURE EQUIPMENT CO. LTD.  
645 NORTH MARTEL AVE. CABLE ADDRESS ARTREEVES  
HOLLYWOOD, CALIFORNIA, U.S.A.

# Candid Movie Stills

The Chicago-Herald Examiner has been a pioneer in a remarkable photographic development which has made possible what are styled "Candid Movie Stills." Using a Bell & Howell hand-held 35 mm. Eyemo motion picture camera equipped with a special shutter, this newspaper has been able to give its readers a sensational succession of vivid, attention-arresting sets of news pictures, each set, or series, showing continuous action photos of the event depicted.

Herewith are two typical series of these candid pictures, taken by a Herald-Examiner staff photographer. One shows how Levinsky fell when Joe Louis landed a body blow. The other shows Bill Lee, of the Cubs, pitching.

Readers "eat up" this sort of pictures. They like the way the action is "stopped" clearly and sharply. They can follow the action through in every essential movement from start to finish. As a matter of fact, the candid pictures are often more revealing than what can be seen by the eyes of a spectator.

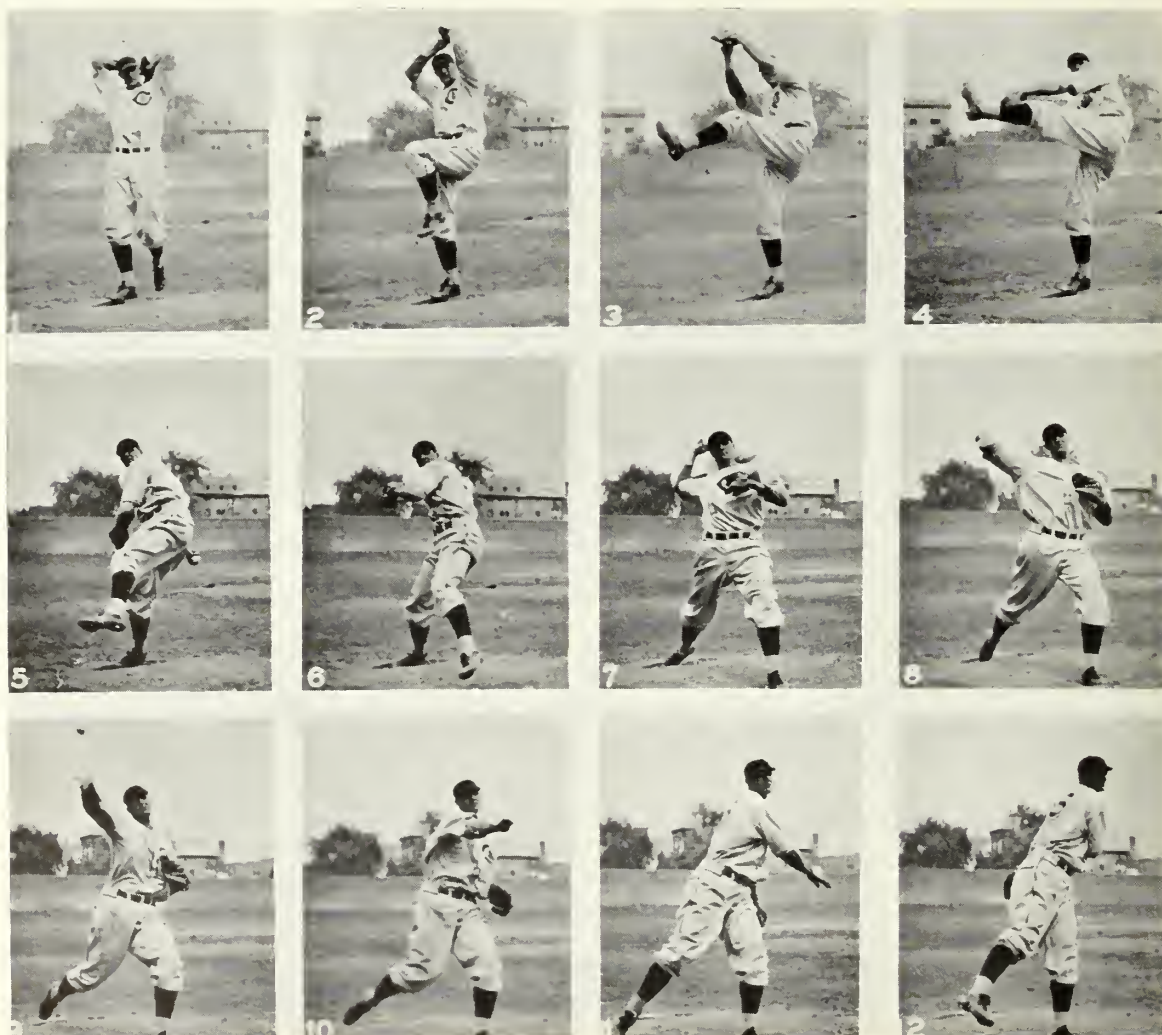
It takes a movie camera to make pictures in this rapid succession. For continuous candid work the Eyemo movie camera, which weighs only seven pounds, is usually fitted with an 18-degree shutter that reduces the exposure time to 1/324th second when the camera is operated at 16 frames per second. At 32 speed the exposure time is only 1/648th second, short enough to "stop" even the fastest ac-



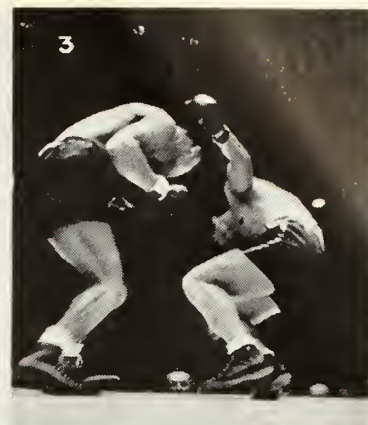
tion. Smaller shutters are available to double this speed, if desired. The use of either of these shutters makes the pictures so sharp that they can be enlarged without loss of distinctness.

After the pictures are taken, the photographer selects the individual shots that tell the complete story. Enlarged for newspaper reproduction, these action pictures tell a vivid, unvarnished story.

Pictures can be taken at sound speed (24 frames per second) with the camera equipped with sound-film aperture plate, thus producing a movie of the same size as made by Hollywood studio cameras. Sound effects can be added by a local recording studio in most cities, and the film can be run at local theaters with conspicuous mention of the newspaper producing it.







## ARCHAEOLOGY OF THE MOTION PICTURE

(Continued from Page 5)

the details, the illusion of motion was evidently obtained by revolving the figures around candles. Candles, it will be noted, were the illuminant used then.

Too, there is the passage in Jonothan Swift's "Journal to Stella," written on March 27, 1712-13, which substantiates the existence of a device for the portrayal of pictorial motion:

"I went afterwards to see a famous moving picture and I never saw anything so pretty. You see a sea ten miles wide, a town on t'other end and ships sailing in the sea and discharging their cannon. You see a great sky with moon and stars, etc."

According to present records, the reference here to the words "moving picture" is the first time they were used. Morain, a German, is credited with the invention of this device, and Penkethnan, a noted show man of the period, exhibited the pictures. Since the magic lantern had been invented over 72 years previously, it is probable that the Morian device utilized the lantern along with a series of hand-drawn slides. The slides, perhaps, as in the later "Slide Shows," would have been shown in series or superimposed. Of course motion could not be simulated, though effects that would be novel to the uninitiated could have been obtained.

(Part II. in January '36)

## NATURAL COLOR MOVIES WITH POLARIZED LIGHT

By ARTHUR C. PILLSBURY

This new method of motion picture work required an entirely new method of taking motion pictures in color through a microscope, so first of all I had to invent and make the equipment for it. With it I can convert a professional motion camera to a natural color camera in 20 seconds.

Next you ask what is "polarized light"? The four pages in your encyclopedia will not tell you, but considering light as waves, and color as waves of greater or shorter length, giving the sense of color to the eye, the passing of light through prisms in the polarizing microscope allows, we will say, only certain waves to pass and others are deflected. So in viewing the object, allowing only the special waves of light to pass through it, any very slight change in the thickness of the subject changes the wave lengths and produces the color visible to the eye.

This is illustrated by taking a small piece of isinglass, such as we use in the windows of our stoves, and with your penknife drill a small hole almost through it. Under the polarizing microscope almost no color is visible if the sheet is uniform, but looking at it through the tiny hole, the sides and bottom of the hole, pin point in size, are the most wonderful colors you can imagine, the color changing as the hole gets to its deepest part. Bevel the edge and you get the same beautiful result.

In chemicals, like copper sulphite or many others, dissolved in

a drop of water, as the water evaporates under the polarizing microscope the crystals as they form inside the drop grow and some change in thickness all the time and give a wonderful picture of changing color. The picturing of this involves all sorts of troubles. First the drop of water is almost invisible when reflected in the camera, so much so, it is hard to focus and place in the field correctly. You might say it was non-existent in visibility till the crystals form, when the pictures should be finished.

So I had to invent a new method of focusing and placing in the center of the camera field; the action may take only a few seconds or several minutes, another photographic trouble to overcome. Put a dozen drops side by side and no two will be alike in time of forming or beauty. So the thrill of this work is to get a beautiful picture which is well worth the effort.

The application of living subjects is very great, opening an entirely new field, so many subjects have, to the trained eye, a part of special interest, visible only very slightly, and that part is lost to most eyes, it is so slightly different in color from other matter around it, and is entirely lost in the regular motion picture, but with the polarized light microscope these slight changes of refractive light emphasize the color changes, making it very easy to see and picture. The new work is expensive as all new work is, but the result is worth the cost and extra effort.



# Taking the Magic of Hollywood to Manila

(Mr. Boyle is Internationally Known as Editor of the "Out of Focus" Department of The International Photographer, Hollywood.)  
(From The Herald Mid-Week Magazine, Manila, Philippine Islands, August 21, 1935)  
(Contributed)

**U**SUALLY, it is about the stars that we read. Seldom do we read about the men behind the scenes, the tireless workers who turn the magic of the make-believe world into superb entertainment for us of the twentieth century. In Hollywood, as well as in the Philippines, the men behind the scenes are seldom brought to the lime-light. And yet, they perform as important a part, if not a more important, than the stars in the making of pictures.

Last week, during the preview of "Himala ni Bathala," the newspapermen were unanimous in remarking: what a masterpiece of photography! Truly, they said, Filipino pictures have arrived. And they asked who the photographer was. And the answer was: Charles P. Boyle, A. S. C., studio manager of the Philippine Films Productions, pioneer makers of talking pictures in this country.

Boyle, or Charlie, for short arrived here unheralded last May 7. Of a naturally quiet disposition, he never bragged about himself. He moved about unobtrusively, smiling only now and then in answer to greetings from persons who know him, and always tight as a clam.

But when people began talking about the remarkable photography of "Himala ni Bathala," Boyle, upon the insistence of newspapermen, broke his silence. And to us was revealed something that even dazzles us more than many stars of the shadow-world.

To be sure, Boyle is not the first Hollywood technician to come over. Three others had preceded him. They were the ones that laid the groundwork for the Filipino talking pictures that are now being shown throughout the Philippines, Malaysia, Hawaii, and very soon, throughout the world. As a matter of fact, inquiries have already been received from England, France, Italy, Egypt, and South Africa.

Boyle, he reluctantly told us, started making pictures more than a decade ago. For seven years, he was connected with the Paramount Studios. Among the features he photographed are "Behind the Front," "We're in the Navy Now," starring Wallace Beery and Raymond Hatton, and "Old Ironsides."

For one year, he was associated with the Cecil B. De Mille's studios. He was also connected for the same length of time with Pathé Studios, F. B. O., Techart, and many independent producers.

Before coming over, he also had one year association with the Technicolor Corporation. He photographed "Follow Thru" and many other short subjects for the far-flung Warner Brothers and the MGM Studios.

That famous producer of comedies, Mack Sennet, creator of Gloria Swanson, Harold Lloyd, Bebe Daniels, and many others, occupies a dear place in Boyle's album of memories. For three years, he was with Mack Sennet as cinematographer. He is also a life member of International Photographers of which he was the interest for many years.

"I guess," he told us, "you have enough." That was said in the rush of the finishing touches to "Kundiman ng Puso," the first broadcast picture ever made here, which is now in the laboratory.

"Of course," we agreed, "we understand. "You

are rather embarrassed because we all feel that you have brought the magic of Hollywood to our pictures. But we want you to tell us also how you are finding your Philippine assignment."

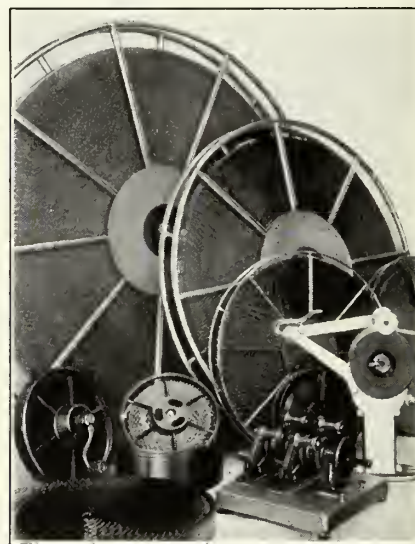
Charlie, for the first time since the interview began, talked freely.

"I love these beautiful islands," he told us. "During the shooting of 'Himala ni Bathala,' we had plenty of outdoor scenes and I enjoyed your landscapes immensely. I am now convinced that the Philippines is a good setting for motion pictures. Your native life has a glamour that will no doubt catch the fancy of the world some day. There is no better medium to catch that fancy than the motion picture."

Charlie believes there is a big future for Filipino pictures. He says a career in pictures is very much coveted in the United States, and it should hold the same spell in this country.

For his association with the local cinema stars, Boyle has gathered the impression that some of them are possessed of great latent acting ability. As they are young, he said, nobody can tell to what heights of fame they will reach.

"I believe," he said, "that even at this early stage of the motion picture industry, we can already predict that the Philippines will some day produce stars that will be acclaimed the world over. And they may be among our stars here."



## Davidge Developing System

Developing outfits, 25 feet to 1000 feet. Light, compact and efficient. The ideal equipment for small studio laboratories, expedition work, schools and the home. You can get superior results at low cost with the patented Roto-Tank processing. We also manufacture The Davidge Improved Celluloid Apron for use with our units or as a replacement apron for any of the developing tanks using the 16 or 35 M.M. sizes. Bakelite spooling discs, negative tightwinders and synchronizing machines at attractive prices. Send for the new illustrated catalog and price list.

### Hollywood Roto-Tank Ltd.

5225 Wilshire Blvd.

Los Angeles, Calif.



# The Orient Comes to Hollywood for Up to Date Equipment



THE ARTREEVES DEVELOPING MACHINE

The Hollywood Motion Picture Equipment Co. has designed a developing machine that should admirably fill the needs of motion picture operators who have been unable to acquire the more elaborate, expensive outfits.

The requirements of the sound film renders it difficult for laboratories using the rack and tank system to compete with the machine developer. This new machine, then, is deserving of notice. The following are some of the features that have particular appeal:

The machinery is so nicely poised and runs so freely that no more than a **2 horsepower** motor is required to propel it.

This delicacy of balance and freedom of movement is further suggested by the fact that the slightest touch, on any of the running parts is sufficient to arrest the motion of the machine.

No sprockets are required to propel the film: consequently, the danger to the film from torn sprocket-holes is eliminated. (It may be mentioned that a large percentage of losses by breakage is directly attributed to torn sprocket-holes.)

The tanks are comparatively deep and narrow, thereby offering a small area to the air, thus reduc-

ing the likelihood of oxidation independent of the reactions that take place during development.

The washing of the film, after it leaves the hypo, embodies a novel idea, which not only insures thorough elimination of the hypo but likewise expedites the washing process.

The drying chamber is an interesting feature. The circulation of the saturated air follows a natural direction, and when the film finally emerges it is clean, soft and pliable, and needs no subsequent polishing.

The normal capacity is **2,000 feet per hour**. This rate of development may be modified by a novel automatic speed regulator.

Should the power suddenly fail, provision is made for immediately throwing hand power into play, thereby enabling the operator to save any film that might otherwise be spoilt by remaining in the developer too long during the breakdown. The mechanism requires so little power, that a man can propel it with very little effort.

Indeed, after watching the machine operate for some time, there appears to be little that can go wrong.

The machine takes up very little space, being 7 feet long, 3 feet wide, and 8 feet high.

## AFRICAN BACKGROUNDS

Merl La Voy, 'round the world newsreeler, travel and war photographer, who has been covering the four corners of the earth for the past 25 years, is putting the finishing touches upon a fine photographic equipment preparatory to departure for Africa, where he will be shooting background, shorts and feature

length subjects during 1936-7. During this period La Voy expects to cover every important location in the Dark Continent. If the reader be in the market for African background it is suggested that he get in touch with Mr. La Voy. See advertisement on page 9 for Mr. La Voy's address.

# 16 MM. THE STORY OF AMATEUR FILM STANDARDIZATION

(Continued from Page 7)

- Scene 7. MEDIUM CLOSE-UP OF AUNTIE AT OVEN. (1 photoflood in reflector; F 2.9.) Auntie registers satisfaction with the cooking turkey, revealed in the oven. FADE OUT.
- Title 2. Fade in. THE REAL TREAT OF THE DAY.
- Scene 8. MEDIUM SHOT OF FAMILY AT DINNER TABLE. (2 photofloods in reflectors; F 2.9 for daylight shot. If at night, increased exposure will be necessary.) We slowly pan around table of Dad carving; grandparents, Johnny and Mary, Mother and Auntie registering delight at the dinner.
- Scene 9. MEDIUM CLOSE-UP OF DAD CARVING AND SERVING TURKEY. (1 photoflood in reflector; F 2.9.) Dad is all smiles at his work.
- Scene 10. CLOSE-UP OF THE CHILDREN. (1 photoflood in reflector; F 3.5.) Johnny and Mary eagerly await their serving of the Christmas turkey.
- Scene 11. CLOSE-UP OF THE GRANDPARENTS. (1 photoflood in reflector; F 3.5.) Grandparents are as eager as the children.
- Scene 12. CLOSE-UP OF AUNTIE. (1 photoflood in reflector; F 3.5.) Auntie smiles as she tries to tell Dad how to carve the turkey. She is proud of her cooking job.
- Scene 13. MEDIUM CLOSE-UP OF MOTHER. (1 photoflood in reflector; F 2.9.) Mother is busy passing and serving the various plates, heaped with potatoes, vegetables, etc.
- Scene 14. MEDIUMSHOT OF FAMILY AT DINNER TABLE. (2 photofloods in reflectors; F 2.9.) Everyone in a happy mood as they eat and enjoy the dinner. FADE OUT.
- Title 3. Fade in. AFTER DINNER DAD ENJOYS HIMSELF.
- Scene 15. MEDIUM SHOT OF DAD AND JOHNNY AT BRIDGE TABLE. (1 photoflood in reflector; F 1.9.) Dad is seated, and is amusing himself with Johnny's mechanical building set. Johnny, standing at table, looks on.
- Scene 16. MEDIUM CLOSE-UP OF DAD AND JOHNNY. (1 photoflood in reflector; F 2.9.) Johnny remonstrates with Dad, but Dad is too absorbed in enjoyment of the building set.
- Scene 17. CLOSE-UP OF JOHNNY. (1 photoflood in reflector; F 3.5.) Johnny is pleading now, says to Dad:
- Title 4. "I WANT MY BUILDING SET."
- Scene 18. CLOSE-UP OF JOHNNY. (Same as Scene 17.) Johnny finishes speaking title.
- Scene 19. MEDIUM CLOSE-UP OF DAD AND JOHNNY. (1 photoflood in reflector; F 2.9.) Reluctantly Dad hands over the set to Johnny; then smiles as Johnny invites him to assist in putting set together. FADE OUT.
- Title 5. Fade in. EVENING—AND A PICK-UP SUPPER.
- Scene 20. MEDIUM SHOT OF KITCHEN. (1 photoflood in reflector; F 2.9.) Each member of the family is busy making sandwiches from the remains of the turkey. Auntie scolds Dad for taking too much turkey, saying:
- Title 6. "NO MORE TURKEY FOR YOU."
- Scene 21. MEDIUM SHOT OF KITCHEN. (Same as Scene 20.) As Auntie finishes title, she grabs the dish with the turkey on it and exits toward refrigerator.
- Scene 22. CLOSE-UP OF DAD. (1 photoflood in reflector; F 3.5.) Dad registers disappointment, but must content himself with the sandwich at hand. FADE OUT.
- Title 7. Fade in. THE END OF A PERFECT DAY.
- Scene 23. MEDIUM SHOT OF CHILDREN'S BEDROOM. (1 photoflood in reflector; F 2.9.) Both children are in their respective beds. Mary has her doll; Johnny, his Mickey Mouse. There is contentment mirrored in their faces.
- Scene 24. CLOSE-UP OF MARY IN HER BED. (1 photoflood in reflector; F 3.5.) Mary is playing with her doll, smiling.
- Scene 25. CLOSE-UP OF JOHNNY IN HIS BED. (1 photoflood in reflector; F 3.5.) Johnny is holding up Mickey Mouse, making it dance.
- Scene 26. BIG CLOSE-UP OF MARY. (1 photoflood in reflector; F 4.) Mary through her smiles cannot stifle a yawn . . . she is tired . . . she falls to sleep.
- Scene 27. BIG CLOSE-UP OF JOHNNY. (1 photoflood in reflector; F 4.) Johnny, too, is tired . . . Mickey Mouse falls to his side

. . . Johnny is asleep. FADE OUT.

Title 8. Fade in. THE END.  
FADE OUT.

NOTE: Exposure directions, supplied for each scene, are merely suggestive; and of course include the use of Super Panchromatic film, an F 1.9 lens, and two Mazda photoflood bulbs in reflector. For your own specific problem of exposure it is necessary to refer to the table accompanying your roll of film.

## FILM CLIPS

**Projector Care:** The winter months bring increased use of your projection machine. Make sure it is working at full efficiency, by referring to the instruction book furnished with your particular make for cleaning, oiling and lamp adjusting. Generally speaking, clean all sprockets and film idlers with a slightly moistened rag. Open the aperture gate and remove the collection there of emulsion particles and dust. Never use any metal or sharp edged implement, as this will most surely injure the highly polished gate. The moistened rag will do the trick, safely. With a dry, clean, lintless cloth clean reflector-mirror, condenser and projection lenses. Apply oil sparingly and on the right bearings. Check the alignment of the projector lamp. If through constant use the inside of the lamp is greatly blackened, it will pay you to discard same. A new lamp will give a brighter picture and add sparkle to your movies.

**Clean Reels and Cans:** While on the subject of cleaning, don't overlook your projection reels and humidor cans. Through handling they collect dust and dirt, too. For your film's sake, use some good cleaning fluid on the reels—on the inside and outside flanges—and on the cans. A film is only as clean as its reel and can.

**Frosted Leader:** When making up a 400-foot reel, save the four individual frosted leaders from your 100-foot spools. Make a practice of doing this and splice the individual leaders into a continuous roll. Then you'll never run short of frosted leader when you're editing and assembling.

**Rewinding:** Whenever rewinding film, avoid jerky pull on the geared rewinders. An even rotation—not too fast—is the best way. Above all, don't "cinch" a rewound film—pulling up slack by yanking the film while holding the reel stationary. This is ruinous treatment for a film.

**Split Reel:** Any motion picture laboratory knows what a great help the split reel is in handling film. This type reel has but a single flange, enabling the removal of film from it in coiled form. You can easily make a split reel from one of your discarded 100-foot reels. Once having used a split reel, you'll wonder how you ever got along without it in handling film.

## QUESTIONS AND ANSWERS

1. How long should an average movie shot be?

Excepting specific action shots from a continuity, an average scene photographed at silent speed of 16 pictures per second should last ten seconds, or four feet of 16 mm. film. If filmed at sound speed of 24 pictures per second, ten seconds' action will require six feet of 16 mm. film.

2. Should the beginner in cinematography tend to over-shoot an average scene?

Yes, by all means do so. Too much footage can always be shortened by editing. But a valuable



scene, skimped in photographing, cannot be made the proper length later.

3. What causes fog at the start and at the end of a reel of home movies?

Generally, this is due to careless loading and unloading film in the camera. Always accomplish these two operations in subdued light, being careful to allow no slack in the leader and trailer film of a roll.

4. Do insurance restrictions prevail in the use of amateur film; 8 mm., 9.5 mm., 16 mm., etc.?

No. The very fact each foot bears the word SAFETY along the perforation edge is its passport for use anywhere.

5. What causes black specks photographed along frame lines?

This condition is caused by a dirty aperture gate in the camera. Clean the gate carefully, removing all dust and particles of emulsion clinging to it. It

is advisable to do this before exposing each roll of film.

6. In projecting, black specks show on the frame line of my screen, but do not appear on the film itself; what causes them?

The aperture gate of the projector is dusty, causing the images of same to be projected on the screen. Be sure the gate and film is perfectly clean.

The foregoing questions are typical of those most often asked by the cine amateur. As a service to such amateurs, who are subscribers to THE INTERNATIONAL PHOTOGRAPHER, we extend a cordial invitation to send in questions which will be replied to in this department. Address all such letters to:

Questions and Answers Department,

THE INTERNATIONAL PHOTOGRAPHER,  
1605 North Cahuenga Avenue.  
Hollywood, California.

## HAL MOHR SPEAKS IN BEHALF OF CAMERAMEN

(Continued from Page 11)

photographing "Soak the Rich" for Hecht and McArthur, a Paramount production. Not until Shamroy was able to prove to Mr. B. P. Schulberg, then at Paramount Studios, that he was an ace cameraman was Shamroy considered a photographer of importance. In fact, when engaged to photograph the first time at Paramount Studios the matter came as a complete surprise to many of his colleagues, but once he had photographed a picture, Shamroy no longer had to fight for recognition—he had earned it.

Hal Mohr, among the most outstanding of all cameramen, soon to be a director, and who is responsible for the brilliant photography exhibited in "Midsummer Night's Dream," Warner Brothers production, and also the photography on "Captain Blood," recent Warner Brothers production, when questioned concerning his photographic achievement on "Midsummer Night's Dream," stated:

"If Shakespeare had not written the play the way he did, there would not have been the opportunity for photography we had in this picture. But he simply let his marvelous mind run riot that at times had me stopped in trying to place upon a strip of celluloid the thing that Shakespeare had visualized.

"I was fortunate enough to work with William Dieterle and Max Reinhardt, men with vision, imagination and patience. It was also fortunate that Shakespeare knew nothing of motion picture cameras when he wrote the play. He wrote his fantasy with no thought of whether or not it could be photographed, therefore he

really gave us something to shoot at, photographically speaking.

"Today the modern writers seem camera-conscious in their writing. They do not create situations which they think cannot be placed upon the screen, so a cameraman must go ahead and do the routine. In the 'Dream' the unusual was required and I am glad to have accomplished it. All my life I have aimed at a certain goal of perfection. Success in any line of work largely depends upon opportunity. This holds true of a cameraman. If you keep a photographer on 'quickies' or Westerns he becomes stereotyped and has no chance."

The writer in no way wishes to avoid stressing the doctrine, "As ye sow, so shall ye reap." Too well is it known that in industry, meritorious work is justly rewarded, yet many cameramen, working on the "quickie" or Western type of picture, wonder whether to believe what others have said. On the other hand, actualities constrain me to say to Cameramen Bob Cline, Jack Greenhalgh and Pliny Goodfriend, "Wait for the breaks."

Better proof than Mohr's summary is hardly possible. His statement can be considered an answer to the many camera enthusiasts who have asked your writer how one becomes an ace cameraman. It is fitting that a glowing tribute be paid Mohr for his sincerity and loyalty to cameramen. He has spoken in behalf of them. Now in behalf of them I say: "Hal Mohr, we salute you for your worthy contribution to the photographic profession."



**MAX FACTOR'S**  
NEW  
*Satin Smooth*  
**LIQUID FOUNDATION**  
A REVELATION IN FACIAL MAKE-UP

## CORRECT EXPOSURE OF REVERSAL KINE FILM

(Continued from Page 15)

as near to the high-light as possible—a useful average distance is some 18 inches—and the reading taken.

Any ordinary meter may be used for this purpose, with the exception of sensitive-paper meters, but the writer prefers the Bell and Howell "Photometer," with which the brightness of even a very small area of high-light can be estimated. The method is that of matching a glowing filament against the tone of the subject, and though the meter is rather more costly than some of the other types, it has the advantage that one is quite certain what light intensity is being measured. In the actual meter the writer uses, a neutral density filter is placed in a cap over the object glass to reduce the incident intensity from the subject to 10% of the

original value. The meter reading on high-lights now gives a direct value for camera exposure.

A genuine high-light reading must, of course, be taken, and a few experiments may be necessary to accustom oneself to the new method. But results show that the exposure can be altered at will to place the high-lights on any desired point of the characteristic curve, and—with films other than Kodak—a real under-exposure effect can be obtained when desired for night scenes and the like. Filters are used in the normal way, and film speeds are best judged—as in all reversal work—by practical experience.

The writer wishes, in conclusion, to express his appreciation of the help and co-operation given him by Agfa during the course of the experimental work.

## WHAT EVERY PHOTOGRAPHER SHOULD KNOW

(Continued from Page 17)

clear transparency. By comparing any negative with this graded strip, it is easy to compare the highest high-light in the negative with the corresponding density on the graded strip, and likewise the thinnest part of the negative may be compared with the corresponding transparency on the graded strip. This establishes the range of contrast in the negative and from this information, one can arrive at a fairly accurate choice of contrast of printing paper. It must be remembered, however, that when choosing a contrast of paper, the choice is based either upon the contrast over the whole negative or a part of the negative. A negative may be generally contrasty all over, but if, in the case of an outdoor portrait, the face of the person is in complete shadow (flat) then one must choose the proper contrast of paper to render the face in proper contrast, and the rest of the negative must be considered secondary in importance.

The graded strip can also be marked in a manner that will enable the worker to calculate exposure time for a given F value for a 1 to 2 scale of enlargement. Thus if the shadow detail of the negative corresponds to a density on the strip whose exposure is known at F8 for a ratio 1 to 2 enlargement on normal paper, one may proceed to make an exposure with confidence, and, if the heavier portions of the negative require additional time, the dodging device can be brought into play.

11. The ability to compare negatives accurately depends upon a standard, and nothing has ever taken the place of the comparison box with three negatives—one dense—one normal and one thin. By comparing the new negative with those in the comparison box, one can quickly classify the negative and judge exposures accordingly.

12. A thermometer is always needed, for modern photography demands that temperature enter into the calculation for developing, fixing and washing.

13. The Studio Scales, with which every photographer is familiar, is a sensitive instrument and must be handled with precision. See that the pointer is adjusted to the zero position. Always use clean papers on both pans when weighing chemicals. Develop the habit of placing the weights on the right-hand pan, because if the weights are placed on the

left-hand pan (scale facing worker), and the weight on the beam is used, one short changes the formula twice the number of grains recorded on the beam. If one were to place the weights on the left-side (incorrect), for weighing out 180 grains of Elon, he would place a  $\frac{1}{4}$  ounce weight and a 50 grain weight on the left-hand pan and 21 grains on the beam. Actually he would get only 138 grains of Elon into his formula. The reason for so many photographer's making this error is that the weight on the beam is never adjusted until after the larger weights have been placed on the scales. If one will adjust the beam weight to any number of grains, he will notice that the right-hand pan will go down, and it will require an equal weight on the left-hand pan to balance this weight.

14. The Excelsior (Post Office Scales) are used only for weighing quantities of chemicals over 2 ounces in weight, and never for fractions of ounces.

15. An Electric Grill is very satisfactory for heating water, because it does not, as a rule, bring the water to the boiling point. At no time should one test hot water with a photo-thermometer—it will break. Use the tip of your finger. It may burn but the finger will heal—the thermometer, never.

16. Over the sink for developing negatives are three safelights, each controlled by a switch. The light from the safelight should never be directed down toward the developing tanks, but the negative may be held up before the safelight for quick inspection (never more than 5 seconds).

17. The developer should always be covered when not in use. This prevents oxidization and also prevents hypo drippings from entering the developing tank when negatives are being inspected before the safelight.

18. A Rinse Tank is not only used for wetting the film and breaking air bells before development, but after development as well, since rinsing prevents premature breaking down of the hypo.

19. Either rubber, vitreous material or wood make the most satisfactory hypo tank, as no metal will hold up indefinitely against the action of an acid hypo bath.

20. The Wash Tank should have a false bottom with perforations, and the water should have enough force to agitate the films.



21. Film Hangers should never be placed back on the rack without being rinsed or cleaned in a dilute acetic acid bath, then washed.

22. Ferrotypes tins may be stored in the manner shown in the illustration, but ferrotyped prints can not be dried in this manner. The fan (with or without a heating element) is still used with satisfactory results, although there are some very good drying cabinets in use now.

23. Shelf-space is very valuable, and it is important to keep trays and containers in a familiar spot where they may be found readily.

24. If stock chemicals are stored in this manner, it is easy to find them and also easy to determine when they need replenishing.

25. Film Developing Chemicals should be kept

in a separate place and the fixer should never be used for developing both prints and films.

The drawers may be used for storing the things which are needed to complete tests or jobs. In this school laboratory, the drawers contain:

print tongs	towels	diffusion discs
litmus paper	lenses	film
filter paper	stirring rods	opaque
printing paper	pens	etching knife
paper for scales	brushes	Scotch tape
labels for bottles	film clips	masking paper
corks	pencils	formula books
squeegee	erasers	ruler
absorbent cotton		rubber bands
tissue paper		crayon sauce

## CAMERA ACCESSORY FOR WILD LIFE PHOTOGRAPHY

The photography of wild life usually calls for extreme caution and care on the part of the cameraman. In most cases it is impossible for him to approach birds and animals sufficiently close to secure a reasonably large image on his film, hence some device which permits camera control from a distance has long been recognized as a definite and necessary aid to the nature photographer. E. Leitz, Inc., 60 East 10th St., New York City, announces that local dealers everywhere are in a position to furnish a special remote control device for the Leica camera. This equipment is simple, positive and accurate. It merely attaches firmly to the Leica camera in a few seconds, and is easily removed at will.

The Leica remote control device consists essentially of a pulley arrangement of which two cords release the shutter and rewind the film and shutter

for the next exposure. The length of the cords can be increased to any length required, and permit the cameraman complete and easy control over the action of the camera mechanism.

The recommended method of using this equipment is to mount the Leica securely upon a tripod or similar sturdy support so that the camera lens—usually a telephoto lens—is focused directly upon the nest or other area where the subject is expected to appear. The cords controlling the remote control device are adjusted and carried back as far as is convenient or safe, where the photographer can manipulate them without disturbing the wary subjects he wishes to photograph.

If your local dealer is not supplied with the new Leica remote control device, write to E. Leitz, Inc., for Circular 7587 which gives complete details.

## TAYLOR-HOBSON COOKE

# SPEED-PANCHRO

## LENSES FOR TODAY'S LIGHTING AND COLORS

*A New 2 1/4 inch F 1.3 to supplement the famous F 2 Speed-Panchros*

And now the extremely fast F 1.3 with the same full chromatic correction as the F 2 series, providing beautifully crisp image under most adverse lighting conditions.

★ Taylor-Hobson Cooke F 2 Speed-Panchros are universally preferred for black-and-white and for color work, because they are the most perfectly color-corrected lenses ever formulated, giving not only maximum color correction for today's production conditions, but also exceptional correction for all other aberrations. Eleven focal lengths, 24 to 108 mm.

*Write for full description*

## BELL & HOWELL COMPANY

CHICAGO—1849 Larchmont Ave. • NEW YORK—11 West 42nd St.  
HOLLYWOOD—716 North LaBrea Ave. • LONDON

*World Leaders in the Design of Professional Cinematographic Equipment*



# INTERNATIONAL CLASSIFIED ADVERTISING

Brings results—Rates 45 cents per line—minimum charge one dollar per insertion. For Rent—For Sale—Wanted—For Exchange, etc.

## FOR SALE OR RENT—CAMERAS

**FOR SALE OR RENT**—Mitchell and Bell & Howell silenced cameras, follow focus. Pan lenses, free head, corrected new aperture. Akeley, De Brie, Pathe, Universal, Prevost, Willart, De Vry, Eyemo, Sept, Leica. Motors, printers lighting equipment. Also every variety of 16 mm. and still cameras and projectors. B & H Cameras with old type shuttles silenced \$150. Everything photographic bought, sold, rented and repaired. Send for our bargain catalogue. Hollywood Camera Exchange, 1600 Cahuenga Blvd. Phone HO. 3651. Cable, Hocamex.

## FOR SALE—CAMERAS AND EQUIPMENT

**REAL BARGAINS** in 16 and 35 mm. movie equipment and still cameras. Newest types cameras and projectors in all popular makes. Save money on film, lights, lenses and all essential accessories. Our 36 years of experience stands back of every sale. Before you buy, send for our new bargain booklet. Burke & James, Inc., 223 W. Madison St., Chicago.

**FOR QUICK SALE**—Motor Driven, Interview Model, DeBrie with 40, 50 and 75 mm. lenses, sun shade matte box with iris, 6 magazines in case, 10 aperture effect mattes, DeBrie Tripod, motor speed control, everything COMPLETE. This is a beautiful camera outfit. **PRICE FOR QUICK SALE \$400.** See it at **AKERS CAMERA COMPANY**, 7414 Santa Monica Blvd., Hollywood. Phone HE-8183.

**MITCHELL CAMERA**; Mitchell & B. & H. Magazines; Mitchell Tripods; Cooke Lenses—mounted and unmounted; Duplex Printer; Magazine and Accessory Cases; and other miscellaneous equipment. Ed Estabrook, 430 No. Flores St., Hollywood. OR. 5003.

**BELL & HOWELL** and Eyemo Cameras, Lenses, Magazines, Tripods, Moviolas, Splicers, all kinds of Sound and Laboratory equipment. Eastman and Dupont spliced negative, tested and guaranteed, 2½¢ per foot, on daylight loading rolls, \$2.75. Inquiries invited. **CONTINENTAL FILMCRAFT**, 1611 Cosmo St., Hollywood.

**TWO AKELEY CAMERAS**, modern studio equipment, late models, full range of lenses. Prices \$850 and \$950. Camera Supply Company, Ltd., 1515 North Cahuenga Blvd, Hollywood.

**MITCHELL CAMERA, COMPLETE** with equipment. Excellent condition. Price \$2500. Box AC, International Photographer.

**MITCHELL 400-FOOT MAGAZINES** and case. Inquire Box WG, International Photographer.

**SILENCED BELL & HOWELL** with new Fearless Movement 40, 50, and 75 mm F:2.7 lenses mounted. Two 1000 foot Magazines, tripod, finder and sunshade. Perfect condition. **MOTION PICTURE CAMERA SUPPLY, INC.**, 723 Seventh Avenue, New York City. Cable: CINECAMERA.

**DE BRIE HIGH SPEED CAMERA**: Two 400-ft. magazines. De Brie heavy duty tripod, 2-inch lens. **MOTION PICTURE CAMERA SUPPLY, INC.**, 723 Seventh Ave., New York City. Cable: CINECAMERA.

**230-DEGREE SHUTTER AKELEY CAMERA X134**, special focus on film attachment. 2-, 4-, 6-, and 12-inch lenses. Four 200-foot magazines, Akeley tripod, cases. Price \$750. **MOTION PICTURE CAMERA SUPPLY, INC.**, 723 Seventh Ave., New York City. Cable: CINECAMERA.

**SILENCED BELL & HOWELL** with check pawl shuttle. 40, 50, and 75mm. F:2.7 lenses mounted, two 1000-ft. magazines, tripod, finder and sunshade. Rebuilt like new. **MOTION PICTURE CAMERA SUPPLY, INC.**, 723 Seventh Ave., New York City. Cable: CINECAMERA.

## FOR SALE—SOUND RECORDERS AND EQUIPMENT

**SOUND TRUCK**—Variable area—the only variable area independent sound truck in Hollywood. This truck cost \$20,000 to build. Has been in steady feature production operation for a year and a half. Delivers PERFECT SOUND. Reason for sale, owner is going into another business and desires to liquidate present assets quickly. Price ONLY \$7,500. Demonstration to reliable parties. ACT QUICKLY. **AKERS CAMERA COMPANY**, 7414 Santa Monica Blvd., Hollywood. Phone HE-8183.

**ART REEVES**, latest model 1935, double system sound recording installation, factory guaranteed, Automatic Speed Control Motor, Twin Fidelity Optical Unit, Bomb microphone, the only genuine, modern, workable ArtReeves equipment for sale in Hollywood outside factory. Price, complete in every detail, \$2,400. Slightly used ArtReeves sound equipment, complete, \$1,800. **CAMERA SUPPLY COMPANY, LTD.**, 1515 No. Cahuenga Blvd., Hollywood.

**POWERS CINEPHONE RECORDERS** with Slit Block and Synchronous Motor \$200.00 each. Also used Synchronous and D-C Interlock Camera Motors. J. BURG CONTNER, 723 Seventh Ave., New York City.

## FOR SALE—MISCELLANEOUS EQUIPMENT

**VERY POWERFUL FLOODLIGHTS** of new design. Will burn through a 1000 W. Rifle with Cable—\$5.00. With 12 foot collapsible Stand, \$22.50. Camera Supply Company, 1515 North Cahuenga Blvd., Hollywood, Calif.

**SEVERAL HOLMES PROJECTORS**, 35 mm., excellent condition. Full Guarantee. Prices \$75.00 to \$95.00. Camera Supply Co., Ltd., 1515 Cahuenga Blvd., Hollywood, Calif.

## WANTED TO BUY

**WANTED**—400 ft. Mitchell magazines, one Mitchell High Hat, one Mitchell motor adapter. Box JB, International Photographer.

**MOTION PICTURE**—Still Picture—Laboratory and Cutting Room Equipment—Lenses—Finders—Tripods. Highest prices paid. **CONTINENTAL FILMCRAFT**, 1611 Cosmo St., Hollywood, Calif.  
**WILL PAY CASH FOR**: Bell & Howell, Mitchell, Akeley or De Brie Cameras, lenses, motors, parts and accessories. **MOTION PICTURE CAMERA SUPPLY, INC.**, 723 Seventh Avenue, New York, N. Y.

## CAMERA REPAIRING

**BELL & HOWELL** cameras with old type shuttles silenced, \$150. Hollywood Motion Picture Equipment Co., 645 No. Martel Ave., Hollywood.

## POSITION WANTED

**DO YOU WANT A CAMERAMAN** who is an expert on studio production; or an expedition cameraman who knows every corner of the world; or a cameraman who thoroughly understands the making of industrial pictures; or an expert newsreel photographer; or an expert color cameraman? A limited number of cameramen, backed by years of experience, are available. Write stating your requirements and we shall be glad to assist you in choosing the kind of cameraman you want. **INTERNATIONAL PHOTOGRAPHER**, 1605 North Cahuenga Ave., Hollywood.

## MISCELLANEOUS

## THE INTERNATIONAL PROJECTIONIST

**THE INTERNATIONAL PROJECTIONIST**, a monthly magazine published in the interests of the projectionist. Interesting, instructive. Yearly subscription U. S. and possessions, \$2; foreign countries, \$2.50. James J. Finn Publishing Corp., 1 West 47th St., New York.

**BUYERS READ** these classified advertisements as you are now doing. If you have something for sale or exchange—advertise it in these columns. **THE INTERNATIONAL PHOTOGRAPHER**, 1605 No. Cahuenga Ave., Hollywood.

**COMPLETE COURSE IN FLYING**—If interested in aviation, see Roy Klaffki, 1605 North Cahuenga Ave., Hollywood.

**WANTED**—To know of the whereabouts of motion picture relics, documents, or equipment of a historical nature for Museum purposes. Write Earl Theisen, care of International Photographer, 1605 Cahuenga Ave., Hollywood.

For the Most Authentic  
Technical Information  
About the Motion Picture  
Industry Consult—

International  
Photographer

Order Your Copy Now!

\$2<sup>50</sup> A YEAR

IN THE UNITED STATES

Name.....

Address.....

City.....State.....



# ACTING AND SPEAKING PHANTOMS

Reprinted from "Magazine Digest" and condensed from *Je Sais Tout*, Paris (April, 1935)



SENSATIONAL invention is about to revolutionize the motion picture. A procedure over which legions of searchers have been racking their brains for many years has finally been evolved by an illustrious French physicist. Almost to the day forty years after his invention of the ordinary cinematograph, Louis Lumiere has presented his latest creation, the moving picture in relief, at a recent public meeting of the French Academy of Science.

At the present the projection is flat, but no doubt in a few months' time this flatness will make us smile, even though it costs us an effort of imagination today to visualize the "third dimension" on the screen.

The effect of relief or solidity may be obtained with such simple means as a stereoscopic camera with two objectives, taking two separate pictures on one plate or film. Looking at these pictures through a stereoscope with two eyeglass lenses we obtain the effect of a perfect relief, that is of figures and objects detached from their background.

This extraordinary result, which is always a surprise to the non-initiated, is just what the new motion picture proposes to achieve and the numerous audience present at the above demonstration certainly felt as though this aim had already been attained when they saw—or thought they saw—a train dashing at them from the screen.

The mechanism by which the effect of relief is produced in life is the capital problem upon which depends the practical application of all the inventions connected with it.

The classical explanation is the following: our eyes produce two slightly different images of the object, the difference increasing in inverse ratio to the distance. The images thus formed on the two retinas are transmitted by the two optic nerves which combine in the brain centers. The psychological "superposition" of the two different perceptions is what produces the effect of relief.

A simple experiment will demonstrate the role of binocular vision engaging both eyes at once for obtaining this effect. If you close one eye and then try to get hold of some detached object, like the finger of another person, you will commit many errors because the distance between your hand and the object in question cannot be correctly estimated with one eye. This simple fact reveals the difficulty of the motion picture in relief problem, which consists in projecting onto one screen two slightly different, stereoscopic, images, so arranged as to allow each spectator to see image No. 1 with the right and image No. 2 with the left eye only.

One solution would consist in projecting the two images close to each other on the screen and supplying each spectator with prismatic opera-glasses, combining them into one. Although satisfactory in theory, this method, proposed already in 1895, presents inconveniences for the audience and tires the eyes, not to mention the fact that such binoculars are fragile and costly. Inventors, and Louis Lumiere particularly, have therefore studied solutions that would allow the use of simpler devices, like ordinary smoked eye-glasses.

The anaglyphic procedure, which is really a physical trick but is used for the study of geometry of the space, is another method of producing relief effects. We design on the same white background two figures representing, for example, two equal cubes, one traced with red and the other with green lines. The bare eye sees nothing but a confusion of inter-crossing lines, but looking through glasses with one red and one green glass or mica lenses the two designs appear distinctly separate from each other. The eye behind the green glass sees only the red design which looks black, while the green lines disappear and merge with the whiteness of the paper. This method is used for lantern slide projections and all kinds of music-hall attractions, but its adaptation to the moving picture presents difficulties, because colored glass absorbs too much light and because the continuous excitation of both retinas by different rays is very trying to the eyes.

Lumiere's remarkable achievement consists in his having evolved special colors for the lenses. Lens No. 1 lets the greenish yellow, yellow, orange and orange-red rays of the spectrum pass, while lens No. 2 is a conductor of the violet, blue and green-blue rays but also of the straight red rays. Thanks to this seemingly insignificant modification both eyes are subject to equal strain, the tiredness due to overexertion is eliminated and a very pure white color is obtained. The instruments required are very simple. The projector is equipped with two objectives, each concealed by a transparent screen identical to the lenses of the eyeglasses, so that two colored images are superimposed on the screen. The glasses for the spectators are simple too and not trying to the eye, even when used for any length of time. Of capital importance is the fact that this procedure does not require any special

films or screens. Because of these considerations there is undoubtedly a brilliant future in store for this latest invention of the great physicist.

But remarkable though this achievement is, it should not make us forget the results of the research pursued by other scientists in other countries with a view to the realization of the "integral motion picture" or the complete faithful reproduction of life.

Neither has the problem of the colored film been solved satisfactorily. What is offered in this respect is far from perfect, but it seems that two French scientists have now evolved a more satisfactory procedure which they intend to commercialize in the near future.

Another important feature which the motion picture still lacks is the "relief of sound." At present voices and noises are badly "placed," that is, they do not always seem to issue from the mouth of the speaking character. The radio is far ahead of the movie in this respect, thanks to its method of utilizing a system of several microphones.

Is it a case of asking "Whither movie?" American technicians are working on a "screenless motion picture" which would present characters and objects detached from the solid support of the screen. Optics allows us to create aerial images by means of a system of concave mirrors, while acoustics permits the concentration of sounds from loudspeakers in the spots in which these images appear. In other words, we can create acting and speaking phantoms, but this obviously is a remote aim and belongs in the field of experimental physics rather than of the commercialized movie. On the other hand, the "movie in relief," in natural colors and with a perfect sound recording is quite feasible on a commercial scale and will undoubtedly soon conquer the field, as did the talkie a few years ago.

## THE HOLLYWOOD MOCKING BIRD

By Silas Edgar Snyder

(The man who wants to kill the mocking birds for singing at night is loose again.)

My friend Jerry, the Mockin' bird,  
Is the finest singer ever heard;

See him up in the old palm tree  
Turning flip-flaps as he trills high C:

Mate nestin' there in the ivy vine,  
Listens enchanted and thinks he's fine.

Night and day Jerry does his stuff,  
Never gets weary, hoarse nor rough;


Ideal daddy and loyal mate,  
Good to his folks and affectionate:

A matchless artist, bless his heart;  
In God's great plan he has his part:

Needs no composer nor band of strings;  
God wrote the music that Jerry sings;

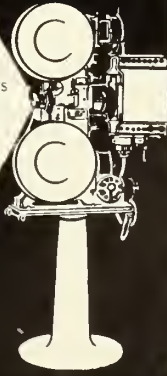
And maybe that's why when I hear his trills  
Touchin' my heart and soul with thrills.

I feel that the Mocker's friendly call  
Means it's not such a bad world after all.



**EVERYTHING  
PHOTOGRAPHIC**  
for Professional and Amateur

New and used. Bought, sold  
rented and repaired. Designers  
and manufacturers of the  
H.C.E. Combination Lens  
Shade and Filter Holder  
for any size lens.  
Send for bargain catalogue  
**Hollywood Camera  
Exchange**  
1600 Cahuenga Blvd.  
Hollywood  
Tel.: HO-3651  
Cable:  
HOCAMEX





## SECOND INTERNATIONAL LEICA EXHIBIT

The success of the first International Leica Exhibit, sponsored by E. Leitz, Inc., 60 East 10th St., New York City, created such enthusiasm that it was decided to afford the public a second showing of the world-famous pictures.

From November 27th to December 9th, and again from December 17th to December 23rd, inclusive, the Second International Leica Exhibit will be on view in Rockefeller Center, Radio City, New York City, in the Mezzanine Gallery. The Gallery will be open to the public from 10 A. M. to 9 P. M. daily. All visitors are welcome, and there is no admission charge.

The outstanding work of dozens of famous professional and amateur Leica photographers will be on display, and those who were fortunate enough to see the first exhibit during last spring will certainly agree that the show is well worth seeing. This new show will have most of the original show's pictures plus a good deal of new material recently gathered so that even if you've seen the first show you will not want to miss this second exhibit.

Two special lectures by H. W. Zieler will be given in conjunction with the exhibits in Radio City, the exact dates of which have not at this writing been definitely determined.

Complete details, which are not at the time this is being written available, may be secured by writing direct to E. Leitz, Inc., or visiting local photographic dealers.

## SHOOTING THE "QUINTS"

(Continued from Page 19)

who will be the first one to break into the movies or, maybe, they were just fighting for a close up.

Our toughest shot was to get a picture of them all asleep—here we ran into some grief. Just as soon as I would click the camera motor on, one of the children would sit up to see what was going on. Here is where I could have used some of my own manufactured French if I were permitted. We finally succeeded in getting the shot after waiting a couple of hours when they were in slumberland. Marie, the little one and incidentally the most backward of them all has given us all the jitters we ever had and, no doubt, that is why she is Doctor Dafoe's favorite. The more trouble, the better they like them; doctors are funny that way, and mothers.

I wouldn't be at all surprised if a stork alighted five or six times down one of those Northern Ontario stove pipes one of these days. Confidentially, between you and me, all the Dionne neighbors in that vicinity are trying to have Quintuplets or Sextuplets these days. Every time a blessed event is expected they ask Dr. Allen Roy Dafoe if he will do his best.



**Scheibe's FILTERS**  
 In World-Wide Use  
 produce Moonlight and Night Effects in Daytime-Fog Scenes-Diffused Focus, and many other effects With any Camera - In any Climate  
**George H. Scheibe**  
 ORIGINATOR OF EFFECT FILTERS  
 1927 WEST 78TH ST. LOS ANGELES, CAL.  
 SINCE 1916  
 HOLLYWOOD STUDIOS USE THEM IN EVERY PRODUCTION

## THE 2,000 FOOT REEL

The Academy Research Council, meeting early in November, approved the following recommendations of the New York Committee representing the distributing companies, thus paving the way for general industry adoption of the 2000' reel, on April 1, 1936:

1. A reduction in the diameter of the standard 2000' reel to 15", in place of the formerly recommended diameter of 15½", which will allow slightly more space for handling the reel in the theatre projection machine, inasmuch as the great majority of theatre projectors are now equipped with 16" magazines within which the new reel must operate.

2. That a minimum reel length of 1750' be specified and that, except in unusual cases, all reels be so cut in the studio that they will reach the theatre in a length of between 1750' and 2000'.

3. That the studios continue to indicate projection change-overs at the end of the first 1000' of each reel to provide for those theatres which may not as yet be equipped with projection machines which will handle 2000' reels, and which must thus continue to be serviced for a period of time with non-standard 1000' reels. In connection with this the Council approved the method recommended by the Reel Length Subcommittee by which the studios will provide these auxiliary change-overs.

W. B. Slaughter of Metro-Goldwyn-Mayer Studios was appointed Chairman of a Subcommittee to investigate the merits of a new universal focus lens which has been submitted to the Research Council for testing on behalf of the producing companies. Farciot Edouart of Paramount was also appointed a member of this subcommittee, three additional members of which will be selected by the chairman.

In order to facilitate the establishment of various technical standards within the studios the Council appointed a general studio standards subcommittee consisting of the following: J. M. Nickolaus, Chairman, Metro-Goldwyn-Mayer; John Aalberg, RKO-Radio; Lawrence Aicholtz, Universal; John Cass, RKO-Radio; Harry Cohan, Warner Brothers Laboratory; Ralph Dawson, Warner Brothers Laboratory; O. L. Dupy, Metro-Goldwyn-Mayer; Arthur Edeson, Metro-Goldwyn-Mayer; Farciot Edouart, Paramount; Porter Evans (eastern member), Warner Brothers (Brooklyn); Godfrey Fischer, Twentieth Century-Fox; Alan Freedman (eastern member), Fox Laboratory (New York); Lloyd Goldsmith, Warner Brothers-First National; W. C. Marcus, Technicolor; Louis Kolb, Metro-Goldwyn-Mayer; Grover Laube, Twentieth Century-Fox; John Livadary, Columbia; R. P. Miller, Warner Brothers-First National; Wesley C. Miller, Metro-Goldwyn-Mayer; Thomas Moulton, United Artists; William Rudolph, Paramount; George Seid, Columbia; J. H. Spray (eastern member), Warner Brothers (Brooklyn); Ralph Townsend, Twentieth Century-Fox; S. J. Twining, Paramount Laboratory; and Gordon S. Mitchell, Manager of the Academy Research Council.

**TWO DOLLARS AND A HALF  
 FOR  
 A YEAR'S SUBSCRIPTION TO  
 THE INTERNATIONAL PHOTOGRAPHER  
 IS A BARGAIN EVEN AT CHRISTMAS TIME**



# CINEMA CARONI

By ROBERT TOBEY

(With sauce for those who like it.)



## HOLLYWOOD HONEYMOON

(A novel novel of a thousand and one nights in a daze)

By R. THRITIS

Synopsis of preceding chapters

Perriwether Murgle, press-agent for the lovely screen star.

Lili Liverblossom, is in a pickle, a very large pickle, just big enough to contain him. He has been carried off to the acric of a huge Bald Eagle named

Willy Nilly. Here the Eagle's wife.

Nelly Nilly, makes googly eyes at Perri. Meanwhile, L. L. has engineered the loan of a ghost to help her in rescuing Murgle. As we pick up the tale, Lili's friend

Bill, has just sent the ghost over to her apartment, and Lili looks up from her chair to see at her window—nothing! With that intuition common to womankind, she knows it is the ghost.

### CHAPTER XIV.

#### Party and Repartee

Scarcely believing her eyes, Lili staggered to the window.

"How—how do you do?" she stammered. "I'll close—close the window so you can come in."

As Lili watched him, the ghost slowly passed through the heavy wall beside the window, and stood at attention by the mantel-piece.

"How amazing!" exclaimed Lili.

A grin broke out on the ghost's face. "You ain't seen nothin', kid," he said in a slow sepulchral voice. "Wait till you see the rest of my bag of tricks." And he jumped a little and clicked his heels with an inaudible click.

"How amazing," repeated Lili, at a loss for anything better to say.

"Won't you sit down?" Lili finally said, hesitantly. "I want you to make yourself at home. Well, not exactly that," she added hastily.

"What good would it do me to sit down?" asked the ghost in his deep voice. "I don't touch anything, you know. If I let myself go I'd fall right through the chair. I might just as well stand up."

For the first time Lili realized she could see the wall behind the ghost, just as if he weren't there, and while his feet seemed to be resting on the floor, they weren't resting on the floor, and yet there they were, although they weren't there. It was all too confusing, thought Lili.

"Can I get you a drink, then?" asked Lili, speaking once for the ghost and twice for herself. "Can I get you a drink? Can I get you a drink? It's a cold night."

"Skip it," said the ghost hollowly. "It wouldn't warm me up a bit. There's nothing to keep it inside me, you see. I'm thinking of having a glass stomach built in, though," he added thoughtfully.

"Gripes," said Lili, "but you're a problem. Won't you try sitting down? You make me so nervous just standing there."

"Anything to help out," said the ghost, jumping and clicking his heels again. He eased himself carefully into the nearest chair. The cat was lying on it. The cat didn't move. But her hairs stood up like soldiers. Each one saluted.

Settling himself comfortably, the ghost spoke again. "I'm really a gay fellow," he said confidentially. "I have a heck of a lot of fun. There are so many tricks I can play without people knowing it." Then he added apologetically, "I'm sorry I have to talk in this awful voice, but all of us ghosts do. It's part of our unhappy lot."

He fell silent for a moment. "I wish I had a piece of chain to clank," he said wistfully. "Haven't you even a small bit of old chain about the house?"

"Nope. All the plumbing is modern," said Lili. "The only thing I might have around is a piece of an old daisy chain from Vassar."

"Did you go to Vassar?" inquired the ghost.

"Sure. In one of my first pictures, 'The Perils of a College Girl.' I played the college girl," said Lili.

"I played the director, too," she reminisced, as she started for the next room to look for the daisy chain. In a moment she was back, carrying a jingling slave bracelet all set with emeralds and diamonds.

"Here you are!" she cried. "Isn't it a daisy?" The ghost seized it with trembling fingers. Instantly he was himself again. "My only real vice," he explained apologetically, rattling the bracelet gleefully.

"And now to the rescue," said Lili.

(How will they reach Perri, in the Eagle's acric? And will they be able to save him from his fate, perhaps a fate worse than death? Write or wire your nearest Senator. And see next month's issue for the reply.)

## QUIET SPECULATION DEPARTMENT

According to the dispatches from Washington (the place the President leaves to board his yacht), the Department of Agriculture is engaged in a research project with its goal the development of a new and different strain of turkeys, a kind with a shape that will better "fit into the limited oven of the present-day apartment kitchen."

A noble, altruistic experiment, this breeding of square turkeys to fit into modern ovens. The next step will be to breed people that can fit into breakfast nooks.

And then they might apply themselves to the breeding of plots that will fit into censors' minds.

May we suggest the employment of the principle of capillarity?

## POLIT SURPRISE DEPT.

Here's what a hyphen did to the listing of the bit players on a motion picture call sheet. Maybe it was a typist's revenge; who knows.

"Walter and Bill; 2 bit politicians."

## KNEECAP REVIEWS

(I have my thumb in my mouth)  
"METROPOLITAN" with Lawrence Tibbett. (Without Lawrence Tibbett, nothing.) A weak story, done a hundred times before; but if you like Tibbett, don't let anyone talk you out of seeing this. To every song he sings he gives the Tibbett all. There is no more than that. Unfortunately, "On The Road to Mandalay," which Tibbett sings superlatively, comes early in the picture, and he never tops it, as who could; and his final song, the Prologue from "Pagliacci," is colorless, too long drawn out, and poorly cut, thus leaving one with a slight taste of cotton in the mouth.

Richard Boleslavski directed with far less than his usual masterly touch; perhaps the trite story was entirely to blame. Virginia Bruce, plenty lovely, is never as lovely on the screen as off. She mostly sings; and since she sings with another's voice, it really was scarcely the role for her. I'm told that Lily Pons was asked to dub her voice in as Bruce's. She didn't, though. Tut, tut! George Marion Sr. and Alice Brady gave two superb performances (just one apiece).

"WAY DOWN EAST." Here's a chestnut spiced up out of filmdom's past. Given this out-moded and mellow has-been to put on the screen (or maybe he chose it), Director Henry King stuck his tongue in his cheek and kept it there all through the making of the picture. Many of the old lines were deftly made to hold a modern punch. The audience with whom I saw it got a lot of enjoyment out of the result. The villain was hissed and our side was lustily cheered. All the characters were well portrayed and in quite the proper spirit. Those taking boxes at this time are Henry Fonda, Rochelle Hudson, Slim Sumner, Edward Trevor, Russell Simpson, Spring Byington, Andy Devine, Sara Hadden, and Astrid Allwyn. Photography by Ernest Palmer was excellent.

"BARBARY COAST." One of the most interesting of the costume pictures, because it not only deals in old clothes, but covers a colorful and thrilling episode in the American past. Miriam Hopkins unpacked her bag on Sam Goldwyn's time and there were all her Becky Sharp tricks, as good as new. All she had to do was learn to spin a roulette wheel. She does her work well, as does Joel McCrea. Edward G. Robinson is so fine in his performance of the part of Louis Chamalis, the boss of San Francisco, that he actually makes you believe his final renunciation scenes.

The photography of the picture, in the hands of Ray June, is superb. A difficult picture to photograph, it was excellently conveyed to the screen, the fog effects being especially noteworthy.

"HANDS ACROSS THE TABLE." And if they're reaching for my money, they can have it, for this picture is a nifty. Rollicking good fun from start

to finish, the story has some angles which are either brand spanking new or else are polished to a fare-thee-well. The dialogue, credited chiefly to Norman Krasna, sparkles like champagne, direction is flawless, the photography is impeccable, the histrionics are matchless—oh, come, come! Carole Lombard is ideal as a shrewd and lovely manicurist whose avowed matrimonial heartlessness crumbles before Love, in the person of one Fred McMuray, who positively scintillates with charm and gayety in this here now celluloid. Ralph Bellamy rounds off a perfect trio as a wealthy young cripple who takes an interest in the frank and saucy young polisher-upper. No wonder Lombard cries for Teddy Tetzlaff as her constant cinematographer—he outcarols Carole in this one, making her look positively luscious. Omy, omy, that this cynic should rave on thus!

## DIPPY DITTIES

I like film.

Film is full of sil-ver.

Sil-ver makes won-der-ful mon-ey

I'm very fond of mon-ey.

It makes such in-ter-es-ting con-ver-sa-tion.

I like film.

R. THRITIS

Silly Sally thinks "farce comedy" is just Bos-tonese for "quickie."

THE MACARONI BOWL, by the Shovel Boys (They dish the dirt). \* \* \* It seems that platinum does tarnish after all. Our platinum blondes are clouding up on us, most of them becoming converted to the color which has been dubbed "brownette"—a sort of golden taffy brown. Jean Harlow and Natalie Moorhead and now Ann Sothern are among the vanguard of the Little Chameleons. \* \* \* Apropos, Max Factor opened his new factory and salesrooms last month, and in it he has separate beauty rooms for the especial care required for the four types of beauty—blond, brunette, red-head, and the new "brownette." \* \* \* Sally Eilers and Harry Joe Brown call their baby "Poochy" because when she was very young Sally starred in "Carnival," and in that picture her name was "Poochy." In a recent newspaper article a columnist misspelled the name and wrote it "Pouchy." How horrid! \* \* \*

Any girl who worries about having children for fear she'll lose her girlish figure should have seen Joan Bennett step from the train on her return from a New York vacation last month. Joan was as trim and lovely as any nineteen-year-old, in spite of having borne three youngsters. \* \* \* An other young lady in pictures who grooves lovelier with motherhood is dainty Frances Dee. Now that she is back in circulation again after the birth of her second child maybe we'll see her in some more splendid roles like that of the stenographer in "The Gay Deception." \* \* \* The Palm Springs Tennis Club is open again under the guidance of Ralph Bellamy and Charlie Farrell. This year they have added an attractive swimming pool, several new courts, and a small but very smart bar to their growing accommodations. \* \* \* June Knight seems to just continue on and on in her engagement in "Jubilee" at the Shubert Theatre in Boston. \* \* \* Glenda Farrell went howling for the first time last month, and jumped from a score of 27 in her first line to 87 in her second. Glenda bowed with Addison Randall, her current b.f., who used to bowl frequently and excellently, but who had to give it up for months because of two broken fingers among those decorating his right hand.

The Santa Fe Railway announces that the Fred Harvey meal cost will take a drop.

That's pretty tough. It took a drop too much during prohibition and got higher'n a kite.

But if prices of meals on trains do come down, it will be hard on the movie stars who travel to reduce their incomes.

They'll have to pay bigger incomes taxes.

## TOUCHING FINISHES

"Listen, dame, if you don't get that dog off this stage pronto I'm gonna throw it off, see! Them are orders direct from Mr. Blitz, and Mr. Blitz owns this here studio, see! . . . Now, don't gimme that. I know his sweetie by sight, and so does everyone in the studio. . . . O-o-o-h, excuse me . . . you means you're Mrs. Blitz. . . ."





EASTMAN  
SUPER X  
NEGATIVE

EASTMAN  
*Duplitized*  
POSITIVE  
FILM

EASTMAN  
DUPLICATING  
NEGATIVE

EASTMAN  
1359  
*Sound Recording*  
FILM

EASTMAN  
FINE GRAIN  
BACKGROUND

EASTMAN  
POSITIVE  
FILM

GOOD WILL  
**Greetings**  
TO THE  
*Photographic*  
TECHNICIANS  
OF THE WORLD  
*J.E.Brulatour, Inc.*





